

**VALIDATION REPORT****CRE – COOPERATIVA RURAL DE  
ELECTRIFICACION LTD.****VALIDATION OF THE “SAN RAMON  
RURAL ELECTRIFICATION”  
PROJECT ACTIVITY****REFERENCE NUMBER: 2007/0020/CDM/01****REPORT NUMBER: 01**

Validation Report Type	
<input type="checkbox"/> Draft	<input checked="" type="checkbox"/> Unqualified.
<input checked="" type="checkbox"/> Final	
Address: C/ Génova, 6 28004 Madrid Spain	Date: 2007-03-30

**VALIDATION REPORT**

Date of first issue: 2007-03-30	Reference No.: 2007/0020/CDM/01
Client: CRE – Cooperativa Rural de Electrificación LTD. Calle Honduras esq. Av. Bush – Santa Cruz de la Sierra – Bolivia.	

**Summary:**

The Spanish Association for Standardisation and Certification (AENOR), has carried out the validation of the “San Ramón Rural Electrification” project located in the north region of the Department of Santa Cruz in the Republic of Bolivia, on the basis of UNFCCC criteria for the CDM, as well as relevant decisions of the EB. The objectives of the validation are to confirm that the project follows the above criteria, the approved methodology and that the PDD presented by CRE will lead to a realistic determination of the emissions reductions of the project activity. The scope of the validation covers the baseline methodology and a study of the monitoring methodology and plan proposed for the collection and achieved of the data necessary for determining the baseline.

The validation, carried out by AENOR, involved a desk study of the PDD and the approved methodology, followed by a visit to La Paz and to the site of the CRE power plant, where key SASA Consulting, Bolivian DNA, Departmental Prefecture of Santa Cruz, local authorities and CRE personnel involved in the project were interviewed. Conformance with local legal and environmental regulations was also confirmed.

Clarifications and corrective actions on a number of issues were requested by AENOR according to desk review and on-site visit conclusions; these were amended satisfactorily by CRE and resulted in a new version of the original PDD.

The approval letter of voluntary participation from the DNA of Bolivia has been received, including confirmation by Bolivian DNA that the project assists them in achieving sustainable development.

It has to be considered that although the first contact to validate the project and the quotation was made in December 2005, the PDD was received in 2007, and that the letter of the Netherlands authorities confirming that the public funding from the Netherlands Ministry were not ODA deviations has not yet been issued, but we have the government of Bolivia confirmation that this is so. Setting aside these two points in the opinion of AENOR the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria, therefore the project shall be recommended for registration within the UNFCCC.

Report No.: 2006/0010/CDM/02		
Report title: NATURAL GAS POWER PLANT FOR ELECTRICITY GENERATION SMALL-SCALE PROJECT ACTIVITY (BOLIVIA) VALIDATION OF SMALL-SCALE CDM PROJECT ACTIVITY FOR GHG EMISSION REDUCTION BY SWITCHING FOSSIL FUELS.		
Members of the validation equipment Javier Vallejo Drehs Rafael Arévalo Martínez Javier Arribas Alonso		
Date of this revision: 2007-03-30	Rev. No.: 01	Number of pages: 20

**Indexing terms**

CDM, small-scale, rural, emissions reductions,  
electricity generation, Natural gas power plant.

☒ No distribution without permission from the  
Client or responsible organisational unit

☐ Limited distribution

☐ Unrestricted distribution

---

**VALIDATION REPORT**

---

**Abbreviations**

AIJ	Activity Implemented Jointly
AMS	III.B Indicative simplified baseline and monitoring methodology for other project activities that switch fossil fuels, small-scale CDM project activities.
Version 10	
CAR	Corrective action request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification
COMSUR	Compañía Minera del Sur (Miner company of the south)
CRE	Cooperativa Rural de Electrificación
DECISION	Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the
3/CMP.1	Kyoto Protocol
DECISION	Simplified Modalities and Procedures for Small-Scale Activity Projects of a Clean Development
4/CMP.1	Mechanism as Defined in Article 12 of the Kyoto Protocol.
Annex II	
EB	Executive Board of the CDM of the Kyoto Protocol
EF	Emission Factor
EIA	Environmental Impact Assessment
GHG	Greenhouse Gases
GWP	Global Warming Potential
IPCC	Intergovernmental Panel for Climate Change
MoU	Memorandum of understanding
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
NCV	Net Calorific Value
NG	Natural Gas
PD	Departmental Prefecture of Santa Cruz
PDD	Project Design Document
PP	Project participants
PPP-JI	Netherlands Pilot Phase Program on Joint Implementation
SASA	Environmental Services consulting company that develops baseline and monitoring plan.
SIA	Socioeconomic Impact Assessment
tC	Carbon tonnes
tCO <sub>2</sub>	Carbon dioxide equivalent tonnes
TJ	Tera Joules
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
YPFB	Yacimientos petrolíferos fiscales Bolivianos (Bolivian fiscal petrol oilfield)

**Conversion Factors and Definitions**

Emissions (Kg CO<sub>2</sub>/year) = fuel consumption (l) x density (Kg/l) x NCV (KJ/Kg) x Carbon content diesel (Kg CO<sub>2</sub>/KJ)

Emission factor for diesel (Kg CO<sub>2</sub>/KWh) = generator emissions (Kg CO<sub>2</sub>/year) / electricity generation (KWh)

---

**VALIDATION REPORT**

---

<b><i>Table of Contents</i></b>	<b><i>Page</i></b>
1 INTRODUCTION .....	3
1.1 Objective	3
1.2 Scope	4
1.3 GHG Project Description	5
2 METHODOLOGY .....	6
2.1 Review of Documents	8
2.2 Follow-up Interviews	8
2.3 Resolution of Clarification and Corrective Action Requests	9
3 VALIDATION FINDINGS .....	9
3.1 Project Design	10
3.2 Baseline	10
3.3 Monitoring Plan	11
3.4 Calculation of GHG Emissions	11
3.5 Environmental Impacts	12
3.6 Comments by Local Stakeholders	12
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS .....	13
5 VALIDATION OPINION .....	14
6 REFERENCES.....	15

Appendix A: Validation Protocol R/DCS/276

---

## VALIDATION REPORT

---

### 1 INTRODUCTION

This validation concerns a small-scale project implemented by CRE in Bolivia to reduce emissions of CO<sub>2</sub> by switching from diesel to natural gas for generating electricity for industrial and household use instead of the current practice of using diesel in isolated electric systems in Bolivia. This project was implemented in 2000 and request retroactive CERs in accordance with Nairobi COP/MOP2 -/CMP2 decision “*Further guidance related with the CDM*”. The objectives of the validation exercise are to confirm that the project meets the necessary CDM criteria, that the project follows the approved methodology (AMS III.B v.10) and that the proposals presented by CRE in the PDD will lead to a realistic determination of the emissions reductions.

The scope of the validation covers the baseline methodology involving a review of the electricity generation and diesel consumptions historical data of the power generators in the Chiquitania Norte region that were replaced by the project activity, and a study of the monitoring plan proposed for the collection and record of all data necessary for determining the baseline and emission reductions.

The project involves the installation of three gas engine generators that represent an installed capacity of 2.9 MWe at the CRE power plant in San Ramón. This power plant will generate electricity that would otherwise continue to be generated with diesel fuel.

The validation team consists of the following members:

Mr. Javier Vallejo Drehs	AENOR Madrid	Team leader, CDM Chief validator
Mr. Rafael Arévalo Martínez	AENOR Madrid	Local expert, CDM Chief validator
Mr. Javier Arribas Alonso	ATISAE	Emas verificador, CDM Chief validator in practices

**Javier Vallejo Drehs** (Forestry Engineer, MBA in Instituto de Empresa) is manager of the Climate Change Unit in AENOR. He has seven years experienced in Standardisation and Certification activities related with Sustainable forest management, Environmental risks analysis and assessment reports validation, Sustainable reports validation and R+D standardisation. He has participated in all the validations and verifications developed by AENOR and he is responsible for the accreditation of AENOR in CDM and JI. He has received extensive training in the CDM and JI validation processes and is responsible for training of new validation and verification personnel.

**Rafael Arévalo Martínez** (Degree in environmental Engineering, Environmental and Quality management systems chief auditor, Qualified CDM chief validator and verifier) is Advisor of Quality Management System and Environment Management System. He has participated in every validation and verification performed by AENOR in Central and South America. He has been also involved in international conferences.

Before joining AENOR, he has worked in GERMANISCHER LLOYD CERTIFICATION MEXICO (Certification body), PERRY JONSON REGISTRAR (Certification body) and TUV RHEINLAND DE MEXICO (Certification body).

**Javier Arribas Alonso** (Industrial Engineer, Mechanics speciality: Structure Calculation and Industrial Installations) is Auditor and consultant of Quality and Environmental Management Systems and also EMAS Verifier. Wide amount of audits developed in compliance with ISO 14001 and EMAS, in chemical and manufacturing industries. In addition, he has carried out CO<sub>2</sub> verification audits in Spanish enterprises affected by the National Allocation Plan. He is expert in manufacturing industry, specifically construction enterprises and is qualified for environmental auditing in all economic activities related with this scope. He has received extensive training in CDM and is a Chief validator in training.

The validation team covers following requirements:

- Knowledge of Kyoto Protocol and the Marrakech Accords (Three members)

---

**VALIDATION REPORT**

---

- Environmental Impacts (Rafael Arévalo, Javier Arribas)
- Skills in management auditing (Three)
- Generation technology (Javier Vallejo, Rafael Arévalo)
- Baseline calculations (Javier Vallejo)
- Monitoring concepts (Javier Vallejo, Rafael Arévalo)
- Regulatory framework in host country (Rafael Arévalo)

In order to have an internal quality control of the project and to proceed with the decision making process, the technology coordinator for this project has revised all the documentation of the project, including this validation report and has raised a positive recommendation to the Operational Director for CDM of AENOR.

*Objective*

CRE has commissioned AENOR to validate a Small-Scale switching fuel project. The validation serves as design verification and is a requirement of all Client projects. The purpose of a validation is to have an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country 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 a requirement for all CDM projects and it is considered necessary to provide assurance of the quality of the project and its intended generation of certified emission reductions (CERs) to stakeholders.

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords, which were confirmed in Montreal (COP/MOP 1)

**1.1 Scope**

The scope of the validation is to assess all aspects of GHG reduction involved in the project, including the project design, the baseline, the determination of the emission factor of the grid and the procedures proposed for monitoring the emission reductions in the future.

The following documents were reviewed as part of the scope of the activity:

- PDD, including baseline study and monitoring plan.
- Approved Methodology (AMS III.B v. 10) and general guidance for Small scale methodologies
- Decision 4/CMP.1 Annex II
- Decision 3/CMP.1 and relevant decisions from the EB
- PPP-JI project: baseline Information and Socioeconomic impact assessment.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. AENOR, based on the Specific Code for the Processing and Conducting of Validation, Registration, Verification and Certification of Kyoto Protocol CDM Project Activities (IE/DCS/066.02), has used a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consultancy services to the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the PDD.

According to Bolivian environmental legislation and information from the PD, there was necessary an EIA to obtain the Environmental License for the project. The Environmental Impact Declaration, which constitutes the Environmental License, was issued on 31<sup>st</sup> August, 2000, confirming that the project is in accordance with host country environmental legislation. The validation team was able to verify that the mitigation measures indicated in the Environmental License were implemented.

---

**VALIDATION REPORT**

---

**1.2 GHG Project Description**

The San Ramon Rural Electrification Project was developed as an “Activity Implemented Jointly” within the pilot scheme of climate change mitigation projects established in UNFCCC. The parties involved in the activity are the Ministry of Development and Cooperation of the Dutch Government – on behalf of Holland – and Cooperativa Rural de Electricidad Ltd. (CRE) of Santa Cruz – on behalf of Bolivia. As an activity implemented jointly, the San Ramon Rural Electrification Project is under the guarantee of the Memo of Understanding between the Ministry of Development and Cooperation of the Dutch Government and the Ministry of Sustainable Development and Planning, signed in Bolivia on September 23, 1998 (see Annex 2). According to this memo, the governments of Holland and Bolivia acknowledge San Ramon as an activity implemented jointly, accepting the rules established by UNFCCC. After this date, the parties expressed a common interest in turning the project from an activity implemented jointly into a clean development project, which are also climate change mitigation projects between industrialized countries and development countries under the framework of the Kyoto Protocol.

The San Ramon Rural Electrification Project replace diesel powered generators with natural gas fuelled generators. This reduces emissions of greenhouse gases (GHG's) and improves power generation and distribution in the Chiquitania Norte in Santa Cruz, Bolivia. The total project provides: i) a natural gas fired electric power generation plant with a capacity of approx. 2.9 MW in San Ramón supplying approximately 9000 MWh; and ii) a distribution network that will serve more than 20 towns and villages benefit around 2800 customers. The project will result in increased reliability and decreased electricity cost.

The San Ramon Rural Electrification Project contribute to the sustainable development of the country since it has allowed the cheapest, non-stop throughout-the-day provision of electric power, without great voltage variations and with enough power to take care of the energy needs of the area. The project replaced a fragmented system of low voltage small plants, enabling the existence in the North Chiquitania of Santa Cruz of a cheaper, highly reliable power source, with the right amount of power to take care of its industrial requirements. Since this area is among the poorest of Santa Cruz and Bolivia, the project has created a significant potential for the economic growth and the social development of the Chiquitania.

The project activity is a fuel switch program that is based on equipment fuel conversion composed of small generation plants powered by diesel engines. Electricity supply to the towns' urban areas, are carried out using diesel-powered generation plants that are normally located within urban limits. The fuel reaches the project area in cistern trucks and is stored in tanks located near the generating engines.

In the system that will be replaced by the project, part of the energy generated at the plants is delivered to a primary distribution system through step-up transformers and in some cases the energy is delivered directly to the secondary distribution system. Concerning the physical and operating conditions of the generation units, with few exceptions, the control and protection panels of the generating groups are in poor condition. One of the characteristics of the current system is that most of the diesel-powered generators that are currently operating require repairs or maintenance work. In general, the generators are located in shed-like powerhouses built with wooden beams, and concrete floors.

Under current operating conditions, the electric systems are plagued by typical problems such as supply disruptions fundamentally due to atmospheric discharges and generation failures. Generally, all the electric systems in the area, limit their operation to a few hours during night-time, failing to meet the population's minimum requirements, and the energy demand of non residential users like small farmers, sawmills, hotels and restaurants. Because of this, many of these users must operate their own private diesel fired generator.

---

**VALIDATION REPORT**

---

**2 METHODOLOGY**

The validation of the project was started in February 2007 and concluded in March 2007. The validation was performed in the manner of an audit, where a desk review of the PDD was first undertaken against the Approved Methodology and CDM and other relevant criteria. The desk review was followed by a site visit to CRE in Bolivia. Some information was also obtained from selected experts in the field as it is shown in Table 1: Interviewed Topics.

In order to ensure transparency, a validation protocol was customised for the project, according to Specific Code IE/DCS/066.02. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

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

The completed validation protocol is enclosed in Appendix A to this report.



## VALIDATION REPORT

<b>Validation Protocol Table 1: Mandatory Requirements</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided ( <b>OK</b> ), or a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.	Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.

  

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

  

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

**Figure 1 Validation protocol tables**

## VALIDATION REPORT

### 2.1 Review of Documents

The Project Design Document submitted by the Client was reviewed against the approved methodology and against CDM and other relevant criteria. Additional background documents related to the project design and baseline were also made available during the on-site visit to CRE in Bolivia. These documents were also reviewed.

The PDD underwent three revisions. To address the corrective actions and clarification requests that arose from AENOR desk review and on-site visit, CRE revised the project design documents resubmitted in February 2007, version I, and March 2007, version II, and developed a final version III in March 2007.

The final validation findings presented in this report relates to the project as described in the project design document version III, March 2007.

### 2.2 Follow-up Interviews

In the period of 2007-02-09 to 2007-03-30, AENOR conducted interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of CRE, SASA, PD, San Javier and San Ramón municipalities and Bolivian DNA were interviewed during the on-site visit on 2007-03-05 to 2007-03-07. The main topics of interviews are summarised in Table 1.

Table 1 Interview topics:

Interviewed organisation Person/Position	Interview topics
<b>CRE</b> <ul style="list-style-type: none"> <li>- Freddy Ortiz Soria: Finance department manager</li> <li>- Ing. Jorge Domínguez: Engineering and operations manager</li> <li>- Ing. Pedro Malsenido: Isolated systems deputy manager</li> <li>- Ing. Oscar Ortiz: Engineering and operations assistant</li> <li>- Ing. Herman Stelzer: Isolated systems support</li> <li>- Ing. Alberto Lobera: Project manager</li> <li>- Lic. Katty Zabala: Administrative manager</li> <li>- Ing. Mariano Valverde: Plant manager</li> <li>- Ramiro Flores: plant operator</li> </ul>	<ul style="list-style-type: none"> <li>➤ On site visit to plant location</li> <li>➤ Power plant operation</li> <li>➤ NG consumptions</li> <li>➤ Electricity generation</li> <li>➤ Monitoring Plan</li> <li>➤ Environmental and quality management system</li> <li>➤ Meters laboratory: calibration operations</li> <li>➤ Environmental legal requirements</li> <li>➤ Financial analysis of the project</li> <li>➤ Compliance with air quality law</li> <li>➤ Power plant design details</li> <li>➤ Public funds from Netherlands</li> <li>➤ Retroactive CERs</li> </ul>
<b>SASA</b> <ul style="list-style-type: none"> <li>- Ing. Juan Carlos Enríquez: Environmental Consultant</li> </ul>	<ul style="list-style-type: none"> <li>➤ PDD development and Additionality justification.</li> <li>➤ Changes in the project design</li> <li>➤ Baseline development</li> <li>➤ Emission reductions calculations</li> </ul>
<b>San Javier municipality</b> <ul style="list-style-type: none"> <li>- Sra. Raquel Sánchez: town council president</li> <li>- Sr. Pablo Macoño: Town council secretary</li> <li>- Sr. Andrés Mojica: public works secretary</li> <li>- Sra. Lourdes Morales: Tourism secretary</li> </ul>	<ul style="list-style-type: none"> <li>➤ Stakeholders meeting</li> <li>➤ Opinion about the project</li> <li>➤ Socioeconomic measures</li> </ul>
<b>San Ramón municipality</b> <ul style="list-style-type: none"> <li>- Lic. Percy Duran: Mayor</li> <li>- Whole town council</li> </ul>	<ul style="list-style-type: none"> <li>➤ Stakeholders meeting</li> <li>➤ Opinion about the project</li> <li>➤ Socioeconomic measures</li> </ul>

---

**VALIDATION REPORT**

---

<b>Interviewed organisation Person/Position</b>	<b>Interview topics</b>
PD - Dra. Michelle Lawrence: Sustainable development secretary of the Environmental quality Department - Lic. Fabiana Palacios: Sustainable development secretary of the Environmental quality Department - Ing. Franz Sensano	<ul style="list-style-type: none"><li>➤ Requirements and Implications of regulations in the Additionality of CDM projects in Bolivia</li><li>➤ Legislation applicable to Power plants</li><li>➤ Type of projects that need EIA</li><li>➤ Environmental License</li><li>➤ Stakeholder meeting</li><li>➤ Opinion about the project</li><li>➤ Negative or positive impacts of the project</li></ul>
DNA - Ing. Ramiro Trujillos: Energy Manager	<ul style="list-style-type: none"><li>➤ DNA procedures to approve project activities</li><li>➤ Opinion about the project</li><li>➤ Public funds from Netherlands</li><li>➤ Retroactive CREs</li></ul>

### **2.3 Resolution of Clarification and Corrective Action Requests**

The objective of this validation phase was to resolve the requests for corrective actions and clarifications and any other outstanding issues that needed to be clarified for AENOR's positive conclusion on the project design. The Corrective Action Requests and the Clarification Request raised by AENOR were resolved during communications between CRE and AENOR. To guarantee the transparency of the validation process, the concerns raised and responses given are summarised in chapter 3 below and documented in more detail in the validation protocol in Appendix A.

Since modifications to the Project design were necessary to resolve AENOR's concerns, the Client decided to revise the documentation and resubmitted the project design document version II at the beginning March 2007. This version contains still non-conformities that were amended in version III, submitted at the end of March 2007. After reviewing the revised and resubmitted project documentation, AENOR issued this final validation report and opinion.

## **3 VALIDATION FINDINGS**

The main findings of the validation are stated in the following sections. The validation findings for each validation subject are presented as follows:

- 1) The findings from the desk review of the original project design documents and the findings from interviews during the on-site visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
- 2) Where AENOR had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 11 Corrective Action Requests and 13 Clarification Requests.
- 3) Where Clarification or Corrective Action Requests have been issued, the exchanges between project participants and AENOR to resolve these Clarification or Corrective Action Requests are summarised in table 3 of the Validation protocol in Appendix A.
- 4) The conclusions for validation subject are presented.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation, PDD version III, March 2007.

---

**VALIDATION REPORT**

---

**3.1 Project Design and additionality**

This project activity consists of three Gas engine generators with a total maximum capacity of 3.06 MW. This technology is a proven and commercialized sound technology manufactured by CATERPILLAR. These modern natural gas fired power generators model G3516 LE, reach the following features: Low exhaust emissions, gallery cooled pistons that prevent carbon build-up and increase detonation margin, the possibility to choose cooling water temperature and an electronic ignition system with detonation sensitive timing. The power plant modern technological features are monitored by a single operator through a remote automatic control panel that regulates operating conditions and adjust the generators' operation as well as their ancillary systems. Although this technology could be well known in other countries, in Bolivia is a new technological solution that represents a transfer of technology and generation knowledge that could be repeated in another isolated systems through all the country. Emission reductions come principally from the more carbon content of diesel oil compared to NG, the greater lower heating value of NG and the efficiency gains of a modern technology and a centralized plant.

The project's contribution to sustainable development is not only related to fuel switching from diesel oil to NG and the subsequent reduction of GHG emissions, but also to the socio-economic benefits that will introduce in Chiquitania north area: diversification of national energy supply, reduction of area dependence on imported fossil fuels, improvement of electrical supply, productive improvement in family micro-companies, health, education and potable water services improvement and the increasing technological base and knowledge in Bolivia regarding NG use for isolated generation systems.

There are several barriers in Bolivia that prevent this project from implementing. These barriers are not only related with investment difficulties due to infrastructures building high prices, but also with technological and prevailing practices barriers that prevent the project to be implemented. For this project CRE needed to reach an agreement with COMSUR to achieve that the gas pipeline that they were building for their own use, supply NG also for CRE new power plant. CRE needed to finance the extra cost incurred by COMSUR to modify its initial project. Moreover, CRE needed to build the entire necessary electrical infrastructure to distribute and supply electricity to all households and companies that were previously supplied by the decentralized generation system and by its own diesel generators. The cost of these works and the cost of the new centralized power plant were absolutely unaffordable for CRE as it is shown in the investment analysis provided to the validation team. As a matter of fact, the validation process was delayed from December 2005 until 2007 due to the lack of funds to cover it. On the other hand, to finance this project only with private investment was unfeasible due to the high costs of the electricity needed to recover investment. Financial Risks conditions in Bolivia prevent CRE to find private or public Investors to finance the project. The funds provided by the Netherlands PPP-JI allowed CRE to face the necessary investments and to maintain electricity prices affordable to inhabitants of the area. The sustainable component of this project and the generation of carbon credits were decisive to obtain the Netherlands PPP-JI funds, as it is stated in the MoU between the Minister for Development Cooperation of the Netherlands and the Minister for sustainable Development and Planning of Bolivia.

There is sufficient publicly available information to document in a transparent and conservative manner the nature of the prohibitive barriers faced by the proposed project activity. CRE investment analysis and the MoU mentioned above demonstrate the additionality of this project. According to DNA and promoters information during the on site visit, these funds are not a deviation from ODA from the Netherlands, but a confirmation of this point from the Netherlands Government was not yet provided to the validation team.

---

**VALIDATION REPORT**

---

**3.2 Baseline**

The PDD describes baseline scenario and calculations, which are in conformance with the approved baseline methodology AMS III.B for small-scale CDM projects that switch fossil fuels in an existing electricity generation application. A new centralised NG power plant was build to replace several decentralised diesel oil generators and supply electricity to the same users of the old system. The key conclusions about the correct application are summarised below.

According to methodology AMS III.B Version 10 para 4 the baseline is the current emissions of the facility expressed as kg CO<sub>2</sub>e/kWh. Emission coefficient for the fuel used by the generation units before and after fuel switch is also needed. According to para 8 (a) monitoring of the fuel used and output for an appropriate period prior to the fuel switch is necessary. Therefore, the baseline scenario for this project correspond to the prevailing practice in Bolivia before 2000 and also the situation in Chiquitania norte, of using diesel oil generators to generate the necessary electricity for households and industrial processes by decentralised means and to replace them with new affordable diesel generators once they end their operational lifetime.

That means that the baseline emissions are the EF of the old decentralised generation system in kg CO<sub>2</sub>e/kWh times the electricity generated by CRE power plant. To calculate the EF CRE performs measures in all the diesel generators of the decentralised system during 1998 and 1999. Data were obtained from direct measuring in each diesel generator and from information of the different owners: invoices, electricity consume, diesel purchases, etc...Data for CRE own diesel generators were obtained from own registries of consumptions of diesel oil and electricity generation. Density and NCV of diesel oil was obtained from diesel supplier YPFB for the specific fuel used in Bolivia. Diesel emission factor was not available from Bolivian sources; therefore the IPCC 2006 data was used. The baseline emission factor for the project is the weighted average of the FE for each diesel generator.

There is sufficient publicly available information to document in a transparent and conservative manner the data used to calculate the baseline emissions. The sources of information are the 2006 IPCC guidelines for National GHG Inventories, volume 2 page 1.23 for Carbon Dioxide emission factor, YPFB publications for the NCV and density of the diesel oil. The amount of diesel oil for baseline emissions calculations is the average annual consumption of the last years for CRE owns diesel generators and the other private ones, which represents most exactly the fuel consumption in absence of the project activity.

Therefore it can be concluded that the baseline emissions calculation is reliable, conservative and transparent and in accordance with approved methodology requirements.

**3.3 Monitoring Plan**

The project applies the methodology for “small-scale CDM projects of switching fossil fuels” (AMS III.B version 10). This monitoring methodology can be used for fossil fuel switching in existing electricity generation applications which result in emission reductions less than or equal to 60Kt CO<sub>2</sub>.

The project meets the conditions required for using it, specifically:

The new centralised NG power plant replaced existing diesel oil power generators and supplies the same population that was supplied by the old decentralised system. Emission reductions are below the required limit.

In accordance with AMS III.B para 8 (b) requirements, Section B.7 of the PDD and monitoring information in annex 4, provided information about frequency, responsibility and authority for controlling, correct deviations and reporting during the crediting period of the Monthly/annual NG use and electricity generated in the new centralised power plant. CRE has implemented an integrated management system that comprises quality, environmental, health and security and social responsibility certified management systems as well as the certified laboratory for testing and calibration. Quality

---

**VALIDATION REPORT**

---

control procedures for NG consumptions and electricity generation, meters calibration, internal audits and uncertainties handling are included in this integrated management system.

The management system necessary for consistent project operations, monitoring and reporting is sufficiently described, taking into account that CRE has implemented and certified the above mentioned integrated management system that includes non-conformance and corrective/prevention actions procedures. Within these procedures, all conflict resolutions are considered.

### **3.4 Calculation of GHG Emissions**

The assumptions made for calculating emission reductions are transparently documented and comply with existing good practice. The calculation methods applied to the determination of emission reduction are explained in detail in Annex 3 and in section B.6 of the PDD, and they follow the requirements of the approved methodology AMS III.B version 10. The project consists of switching from diesel oil to NG to supply electricity for an isolated grid system in Bolivia. The several small generators dispersed through the whole territory were replaced by three modern ones with an installed capacity of 2.9 MW, in a centralised power plant, which have enough generation capacity to supply the estimated electricity demand. In the absence of the project, the same level of demand would be met by diesel oil electricity generation with associated GHG emission of an estimated 959.054 KgCO<sub>2</sub>/MWh. The average annual emission reductions to be achieved by the project are 2,866 tCO<sub>2</sub>/year.

The system boundary is the location of the CRE centralised power plant and the isolated grid supplied.

The emission factor for NG (KgCO<sub>2</sub>/KWh) was calculated according to manufacturer data of fuel consumptions and to National GHG Inventory Report of Bolivia for specific carbon contents of NG in Bolivia. Project emissions are the estimated demand of electricity times the EF for NG.

### **3.5 Environmental Impacts**

An EIA was developed by PP according to Bolivian environmental legislation as described in section D.1 of the PDD. This EIA was sent to environmental authorities in Bolivia and CRE was awarded with the environmental License to implement and operate the power plant. All environmental requirements contained in the environmental license are considered in the environmental management system implemented and certified. The validation team was able to revise during the desk review and on-site visit the environmental license and the socioeconomic impact assessment developed for PPP-JI. All the procedures included in the integrated management system were also reviewed. In addition, Interviews with PD and the DNA confirm that the San Ramón project comply with all applicable environmental legislation, as it was started in the environmental license and the DNA approval letter.

Section D of the PDD explains the process to obtain the environmental license in Bolivia. The legal environmental requirements applicable to the project and the current situation of the process for this project are described in this section. A socioeconomic impact assessment was developed as part of the commitment with sustainable development in the Activity Implemented Jointly according to PPP-JI requirements.

CRE developed periodically environmental monitoring reports to comply with the Environmental license requirements. The validation team was able to revise these reports. According to PD interview, they inspect periodically CRE to verify their environmental performance and until now there is no objection.

### **3.6 Comments by Local Stakeholders**

For the socioeconomic impact assessment it was necessary to carry out a survey and consultation in the area. PP selected a sample of the population of the area that included enterprises, public sector and

---

**VALIDATION REPORT**

---

households. The stakeholders selected were interviewed by a consulting specialised in this type of surveys.

Stakeholders were asked about their perception of the impact of the new power plant in several issues: economic development, social development, environmental quality improvement. The first battery of questions was related with the use of electricity in companies and households. Another one was related with public institutions (health centres, education, potable water, municipality buildings and street lighting).

All the answers were positive to the project due to the improvement of quality and quantity of electrical energy at disposal of the inhabitants of the area.

#### **4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS**

According to Decision 3/CMP.1, the validator shall make publicly available the PDD and receive, within 30 days, comments on the validation requirements from parties, stakeholders and UNFCCC accredited NGOs and make them publicly available.

AENOR published the project documents on CDM website (<http://unfccc.cdm.int>) on 2007-02-22 and invited comments within 2007-03-23 by Parties, stakeholders and non-governmental organisations. No comments were received.

---

**VALIDATION REPORT**

---

**5 VALIDATION OPINION**

AENOR has performed a validation of the “San Ramón Rural Electrification” small scale project in Bolivia. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The proposed new NG power plant will have an installed capacity of 2.9 MW. Electricity generation will be supplied to the isolated grid of Chiquitania in North Santa Cruz department area. The project is not expected to have considerable environmental impacts. The project participant is CRE. The host Party Bolivia meets all relevant participation requirements.

The DNA of Bolivia approved the project and confirmed its contribution to the sustainable development of the country.

Being an electricity generation project activity with an installed capacity of 2.9 MW, that comprises fuel switching from diesel to NG, the project is a “Switching fossil fuels” (Type III.B) as defined in Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project applies a Baseline emission coefficient of 0.95905 tCO<sub>2</sub>/MWh and a project emission coefficient of 0.56040 tCO<sub>2</sub>/MWh, calculated by using NCV and carbon contents of fuel for diesel oil and NG, in accordance with the simplified baseline and monitoring methodology for type III.B version 10. The baseline methodology has been applied correctly and the method has been verified.

By displacing diesel oil-based electricity generation with NG in an existing electricity generation application, the project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of investment and technological barriers and barriers due to prevailing practice demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The review of the project design documentation, the on-site visit and the subsequent follow-up interviews have provided AENOR with sufficient evidence to determine the fulfilment of stated criteria, including the approval letter of the Bolivian DNA. Although Bolivian DNA and Netherlands embassy in Bolivia were aware of and promise to confirm that the public funding from Netherlands is not a deviation from ODA, we have not yet received a confirmation letter but a verbal one. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. This project request retroactive credits according to COP/MOP2 decision. Contact to apply for validation was made in December 2005 but the PDD was not prepared in this time, complying with part of COP/MOP requirements. Bolivian DNA requested AENOR to apply for registration and request retroactive credits since they have this issue already discussed with UNFCCC secretary.

Hence, AENOR request the registration of the “San Ramón Rural Electrification” project as a CDM project activity.



## VALIDATION REPORT

## 6 REFERENCES

**Category 1 documents:** Documents provided by the project proponents that relate directly to the GHG components of the project. These have been used as direct sources of evidence for the determination conclusions.

**Category 2 documents:** Background documents related to the design and/or methodologies employed in the design or other reference documents. Where applicable, Category 2 documents have been used to check project assumptions and confirm the validity of information given in the category 1 documents.

Category	Ref	Document Name	Date	Author
1	1	CDM-SSC-PDD version 3 "San Ramón rural electrification project"	2007-03-29	CRE
1	2	AMS-III.B version 10. Type III "Other project activities" category B "Switching fossil fuels "	2006-12-23	CDM-EB
2	3	Appendix B of the Simplified modalities and procedures for small-scale clean development mechanism project activities: A. General Guidance version 10.	2006	CDM-EB
2	4	Attachment A to Appendix B of the Simplified modalities and procedures for small-scale clean development mechanism project activities: Additionality demonstration.	2005-09-30	CDM-EB
2	5	Guidelines for completing the simplified PDD (CDM-SSC-PDD), the form for submissions of methodologies for SCC CDM PDDs (F-CDM-SSC-Subm) and the form for submissions of bundled SSC CDM Project activities (F-CDM-SSC-BUNDLE) version 4	2006-12-22	CDM-EB
1	6	Baseline and GHG emissions reduction study for the San Ramon Joint Implementation Rural Electrification Project	November 2000	PPP-JI The Netherlands
1	7	Socioeconomic Impact Assessment The San Ramón Rural Electrification Joint Implementation Project	September 2003	PPP-JI The Netherlands
1	8	Impact Assessment on sustainable development of The San Ramon project. Study Protocol.	January 2003	SASA
1	9	Guidelines for National GHG Inventories. Volume 2 Energy. Pages 1.23	2006	IPCC
2	10	List of activities implemented Jointly projects	2002-02-12	<a href="http://unfccc.int/kyoto_mechanisms/aij/activities_implemented_jointly/items/2094.php">http://unfccc.int/kyoto_mechanisms/aij/activities_implemented_jointly/items/2094.php</a>
2	11	Final feasibility and pre-design study of electrification for 5 provinces of Santa Cruz Department. Final report. Demand.	2002	Santa Cruz department prefecture.
1	12	MoU between the minister for development cooperation of the Netherlands and the minister of sustainable development and planning of Bolivia.	1998-23-09	
1	13	Environmental Impact declaration/environmental licenses	2000-31-08	Environmental and natural resources Vice-ministry
2	14	Letter of sectoral conformity	2006-05-04	Electricity and renewable energies viceministry.
1	15	Letter of approval	2007-27-02	Development planning ministry
1	16	Economic assessment project San Ramón	1999	CRE
1	17	Electronic worksheets to calculate GHG emissions	2007	CRE
1	18	Integrated management System: Certifications achieved.	2007	CRE
1	19	Integrated Management Systems: List of procedures and instructions.	2007	CRE
2	20	EIA: Impact assessment matrix	1999	CRE

---

## VALIDATION REPORT

---

Category	Ref	Document Name	Date	Author
2	21	Minute of municipality meetings with Engineering consultant S.A. and local authorities.	October 1998	
2	22	Manufacturer specifications gas engine generator G3516 LE	2000	CATERPILLAR
1	23	GN Emission factor: calculation	1999	CRE
2	24	Measurement methodology of combustion exhaust gases	1999	SASA
2	25	Baseline emission data capture	1999	SASA

- o0o -

---

## VALIDATION REPORT

---

## APPENDIX A

---

## VALIDATION PROTOCOL

**SMALL-SCALE CDM VALIDATION  
PROTOCOL FOR THE COMPANY  
COOPERATIVA RURAL DE  
ELECTRIFICACION LIMITADA**

**VALIDATION OF THE SMALL-  
SCALE PROJECT ACTIVITY SAN  
RAMON RURAL ELECTRIFICATION  
PROJECT**

**REFERENCE NUMBER: 2007/020/CDM/01**

**REPORT NUMBER: 03**

<b>Validation Type</b>	
Validation of a project activity	
Validation team: Javier Vallejo Drehs: Chief validator, team leader. Rafael Arévalo Martínez: Chief validator, local expert. Javier Arribas Alonso: Chief validator in practice.	
Address: C/ Génova, 6 28004 Madrid Spain	Date: 2007-03-30

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2		Table 2, Section B.11.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	<b>CAR1 OK</b>	Table 2, Section A.3 The DNA of Bolivia has not yet issued the Approval letter.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	<b>CAR1 OK</b>	Table 2, Section B.11.1 The DNA of Bolivia has not yet issued the Approval letter.
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	<b>CAR1 OK</b>	The DNA of Bolivia has not yet issued the Approval letter. Unilateral project: An Annex 1 Party is still to be selected.
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b		Table 2, Section B.8 to B.11
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26		Table 2, Section B.2.1

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance (ODA)	Marrakech Accords (Decision 17/CP.7)	<del>CL1</del> OK	The project received a support of US\$ 2,315,000 from the joint Implementation pilot Project Program from the Dutch Government. The PDD does not mention any information of this public funding in section A.4.4 and in Annex II. Provide justification that this aid is not a diversion of Netherlands official development assistance (ODA).
8. Parties participating in the CDM shall designate a national authority for the CDM.	Marrakesh Accords (CDM modalities§ 29)	OK	The Clean Development Office of the Vice-ministry of Natural Resources & Environment in Bolivia was designated the DNA according to administrative resolution 20/02.
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	OK	Bolivia ratified the Kyoto Protocol on 30 <sup>th</sup> November, 1999.
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 © of the Marrakesh Accords and shall not be a debundled component of a larger project activity.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c		Table 2, Section A.1

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
11. The project design document shall conform with the Small Scale CDM Project Design Document format.	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	<b>CAR2 OK</b>	<p>There are the following discrepancies between the SSCCDM format and this PDD:</p> <ul style="list-style-type: none"> <li>- Section A.1: version of the PDD not the AMS III.B</li> <li>- Section A.4.3 and B.6.4: table 3&amp;5 shall provide information only for the first crediting period of seven years.</li> <li>- Section B.4: Additionality information has to be included in section B.5. Section B.4 shall be completed according to the guidelines for completing CDM-SSC-PDD.</li> <li>- Section B.6.2 and B.7.2: The table formats can not be changed in any way.</li> <li>- Section B.6.3: This section does not provide the information and calculations required in the guidelines for completing CDM-SSC-PDD format.</li> <li>- Section B.8: This section is not included in the PDD.</li> <li>- Section D.2: This section is not included in the PDD. According to SSCPDD Word format downloadable from the CDM web page, this section shall exist.</li> <li>- Participants in Annex 1 shall be the same as the ones listed in table 4 of section A.3 of the PDD.</li> </ul>

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e		Table 2, Section A.1.3 and B.1
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b		Table 2, Section E
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c		Table 2, Section D
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	OK	The PDD has been published on the UNFCCC CDM web site. Parties, stakeholders and NGOs were through the CDM web site invited to provide comments from 22 February 2007 to 23 March 2007. No comments were received until now.



## A TABLE 2 REQUIREMENTS CHECKLIST

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A. Project Description</b> The project design is assessed.					
<b>A.1. Small scale project activity</b> It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 28 of decision 1/CMP.2 “Further Guidance relating to the CDM”?		D	Yes, the project results in emission reductions of less than 60 Kt CO <sub>2</sub> equivalents annually, in accordance with decision requirements for Type III project activities.	OK	OK
A.1.2. The small scale project activity is not a debundled component of a larger project activity?		D	There is no registered project in Bolivia that could be considered to include this SSC project activity.	OK	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?		D	Yes, the project confirms to Type III “Other project activities”, category B “Switching fossil fuels”, since this project replaces diesel power generators with natural gas fuelled generators in an existing electricity generation applications.	OK	OK
<b>A.2. Project Design</b> Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?		D I	The PDD provide a map with the exact location of the project activity, but the geographical coordinates of this location shall be provided.	CL2	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?		D I	The project's system comprises the new three natural gas generators with a capacity of 956 KW in a new power plant.	OK	OK
A.2.3. Does the project design engineering reflect current good practices?		D	Section A.4.2 of the PDD describes the technology applied by this project activity to produce electricity with natural gas which included a modern regulation and control system for generator's operations adjustment. These all reflect current good practices for this activity in Bolivia.	OK	OK
A.2.4. Will the project result in technology transfer to the host country?		D I	This type of Power plant is not common in Bolivia. In 2000, when the plant was constructed and implemented the technology to generate electricity for household and industrial issues was with small and dispersed diesel generators. Therefore, the new power plant with its associate new facilities results in technology transfer to Bolivia.	OK	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?		D I	According to PDD information the project required training for the technicians in charge of operating the thermal plant, but there are neither provisions for meeting this training nor for maintenance needs, that were carried out.	CAR3	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.3. Contribution to Sustainable Development</b> The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or socioeconomic benefits than GHG emission reductions?		D I	Section A.2 of the PDD shall describe the contribution of the project activity to sustainable development. This information is included in chapter 5 of the AIJ document: "Socio-economic impact assessment for the San Ramón rural electrification project". According to the guidelines for completing the SSC-CDM-PDD it is necessary to include a brief schematic resume of this information in the PDD.	<b>CL3</b>	<b>OK</b>
A.3.2. Will the project create any adverse environmental or social effects?		D I	Section D.1 and D.2 of the PDD shall provide information about the positive and/or negative impacts arising from the EIA approved by the Ministry of sustainable Development of Bolivia.	<b>CL4</b>	<b>OK</b>
A.3.3. Is the project in line with sustainable development policies of the host country?		D I	The PDD does not mention any information about National sustainable development policies for Bolivia. On the other hand, the Bolivian DNA has not yet issued the approval letter stating that the project contributes to the sustainable development of Bolivia.	<b>CL5</b>	<b>OK</b>
A.3.4. Is the project in line with relevant legislation and plans in the host country?		D I	Section B.5 of the PDD shall mention the relevant legislation applicable to the project and the permits and/or authorizations needed to carry out the activity. Section D.1 shall detailed Bolivian environmental legislation and the process to obtain the Environmental License which shall be provided to the validation team.	<b>CL6</b>	<b>OK</b>

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B. Project Baseline and Monitoring</b> The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
<b>B.1. Baseline Methodology</b> It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?		D	Approved baseline methodology AMS III.B version 7 "Switching fossil fuels" is the selected baseline methodology. A most recent version is available in the CDM web site. PDD shall apply version 10 of this methodology. All the CARs, CLs and assertions described in this protocol are related with version 10 of the AMS III.B.	<b>CAR4</b>	<b>OK</b>
B.1.2. Is the baseline methodology applicable to the project being considered?		D	The project replaced a decentralized power generation system based in diesel with a centralized power plant based in Natural gas. This project is in accordance with para 1 and 2 of the AMS III.B since the application for the electricity generated does not changed and the emission reductions are much below 60 ktCO <sub>2</sub> .	OK	<b>OK</b>

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.2. Baseline Determination</b>  It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?		D I	<p>Sections B.4 and B.5 of the PDD describe the technological, prevailing practices and Investment barriers that prevent this project from being implemented. All this information shall be include only in section B.5. On the other hand, taken into account that the main barrier was the Investment/financial one, it is necessary to provide the validation team with the financial analysis that demonstrate this assertion which could be put available to the public if required by the EB of the CDM.</p> <p>According to the UNFCCC web site, this project was considered an AIJ before 2002-02-12, with the support of the PPP-JI. There are two studies about the project (Socio-economic Impact Assessment and Baseline Information) developed for this programme but no report about the project was send to the UNFCCC-AIJ with the results of the implementation. PP shall clarify why.</p> <p>According to previous studies developed for the PPP-JI, it was possible to implement the project thanks to the aid of the PPP-JI. This economical support is only possible if the project contribute to GHG emission reductions according to the PPP-JI. The PDD shall provide information that demonstrates that the future registration of the project in the CDM and the generations of CERs were decisive to obtain the support of the PPP-JI. Annex A of the Baseline Study shall be provided to the validation team.</p>	GL7	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?		D	Section B.2 of the PDD shall justify the choice of the selected approved methodology. Table 4 of this section does not provide this justification.  Section B.4 of the PDD does not provide formula and assumptions made to calculate Baseline emissions.	<b>CAR5</b>	<b>OK</b>
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?		D I	The Baseline Information document mentioned two studies that had been taken into account to estimate the demand of electricity for baseline and project emissions. PP shall provide these documents to the validation team.	<b>CL8</b>	<b>OK</b>
B.2.4. Is the baseline selection compatible with the available data?		D I	According to para 4 of the AMS III.B the emission baseline are the emissions of the previous decentralized system, express in Kg CO <sub>2</sub> /kWh. Annex 3 of the PDD provides data for three of the decentralized power generators managed by CRE. PP shall provide data for the other diesel generators to calculate Baseline emissions.	<b>CAR6</b>	<b>OK</b>
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?		D I	Section B.4 shall provide information about the selection of the baseline scenario and the formula used and assumptions made to calculate baseline emissions, in accordance with the guidelines for completing the SSC-CDM-PDD.	<b>CAR7</b>	<b>OK</b>

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>Monitoring Plan</b> The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
<b>B.3. Monitoring Methodology</b> It is assessed whether the project applies an appropriate monitoring methodology.					
B.3.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?		D I	Section B.2 of the PDD justifies the applicability of the chosen methodology. This section is not correct: it shall be mentioned AMS III.B version 10 and not AMS II.B. See B.1.1	<b>CAR4</b>	<b>OK</b>
B.3.2. Is the monitoring methodology applicable to the project being considered?		D I	See B.2.2	<b>CAR5</b>	<b>OK</b>
B.3.3. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?		D I	Currently it can not be assessed since neither section B.7.1 nor B.7.2 describes quality procedures to be applied for monitoring electricity generation and fuel consumptions: meters, standards and legislation applicable, calibration, maintenance,...	<b>CAR8</b>	<b>OK</b>

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.4. Monitoring of Project Emissions</b> It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
B.4.1. Are the choices of project emission indicators reasonable?		D I	According to para 8 (b) of the AMS III.B the parameters to be monitored during the crediting period are the natural gas consumption and the electricity generated. Section B.7.1 of the PDD considered these two parameters.	OK	OK
B.4.2. Will it be possible to monitor / measure the specified project emission indicators?		D I	Sections B.7.1 & B.7.2 of the PDD do not provide information about the methods used to monitor these two parameters and to reduce uncertainties. See B.3.3	<del>CAR8</del>	OK
B.4.3. Do the measuring technique and frequency comply with good monitoring practices?		D I	Sections B.7.1 & B.7.2 of the PDD do not provide any information about the monitoring method and frequency, which shall be in accordance with para 12 of the General Guidance for AMS. See B.3.3	<del>CAR8</del>	OK
B.4.4. Are the provisions made for archiving project emission data sufficient to enable later verification?		D I	Sections B.7.1 & B.7.2 of the PDD do not mentioned this provisions, which shall be in accordance with para 12 of the General Guidance for AMS. See B.3.3	<del>CAR8</del>	OK

\* MoV = Means of Verification, D= Document Review, I= Interview



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.5. Monitoring of Leakage</b> It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
B.5.1. If applicable, are the choices of leakage indicators reasonable?		D	According to AMS III.B no leakage calculation is required.	OK	OK
B.5.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?		D	N/A		
B.5.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?		D	N/A		
B.5.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?		D	N/A		
<b>B.6. Monitoring of Baseline Emissions</b> It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
B.6.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?		D	According to para 8 (a) of AMS III.B monitoring shall involve monitoring the fuel used in the diesel power generators and the electricity generated by each one. The PDD only shows this information for the three diesel generators managed by CRE, but the other three included in the decentralized system and estimations for the private ones are not included in the PDD.  See B.2.4	CAR6	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.6.2. Will it be possible to monitor / measure the specified baseline emission indicators?		D I	During the on site visit the validation team shall revise decentralized system data for electricity generation and diesel fuel consumptions. CRE shall make these data available.	<b>CL9</b>	<b>OK</b>
B.6.3. Do the measuring technique and frequency comply with good monitoring practices?		D I	During the on site visit the validation team shall receive information about the meters and methods used to monitor this parameters.	<b>CL9</b>	<b>OK</b>
B.6.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?		D I	According to AMS III.B para 4 the only baseline data is the emissions of the old decentralized system before 2000 expressed in kg CO <sub>2</sub> /kWh. To be revised during the on site visit.	<b>CL9</b>	<b>OK</b>
<b>B.7. Project Management Planning</b> It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
B.7.1. Is the authority and responsibility of project management and for monitoring clearly described?		D I	The currently operational and management structure of CRE that will be used for monitoring shall be described in section B.7.2 of the PDD.	<b>CL10</b>	<b>OK</b>
B.7.2. Are procedures identified for training of monitoring personnel?		D I	The PDD does not describe the training that was carried out for monitoring personnel. See A.2.5	<b>CAR3</b>	<b>OK</b>
B.7.3. Are procedures identified for calibration and maintenance of monitoring equipment and installations?		D I	Section B.7.2 of the PDD does not mention procedures for calibration and maintenance of monitoring equipment and installations. Se B.3.3	<b>CAR8</b>	<b>OK</b>

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.7.4. Are procedures identified for monitoring, measurements and reporting?		D I	Section B.7.2 of the PDD shows a format for fuel monitoring and electricity production, but the persons in charge of monitoring and their responsibilities are not clearly described.	<b>CL10</b>	<b>OK</b>
B.7.5. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)		D	See B.7.1 and B.7.4	<b>CL10</b>	<b>OK</b>
B.7.6. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?		D I	The PDD in sections B.7.1 and B.7.2 shall include information about the procedures to deal with data adjustment, project performance reviews and internal audits to assess compliance with operational and monitoring requirements and corrective actions.	<b>CAR9</b>	<b>OK</b>
B.7.7. Are procedures identified for internal audits of project compliance with operational requirements as applicable and for corrective actions?		D I	See B.7.6	<b>CAR9</b>	<b>OK</b>
B.7.8. Are procedures identified for project performance reviews?		D I	See B.7.6	<b>CAR9</b>	<b>OK</b>

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>Calculation of GHG emissions Ex-ante</b> It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
<b>B.8. Project GHG Emissions Ex-ante</b> The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
B.8.1. Are all aspects related to direct and indirect project emissions captured in the project design?		D I	Fuel consumptions and electricity generation are considered in the PDD.	OK	OK
B.8.2. Have all relevant greenhouse gases and sources been evaluated?		D	All GHG sources have been considered. According to AMS III.B only CO <sub>2</sub> has to be considered.	OK	OK
B.8.3. Do the methodologies for calculating project emissions comply with existing good practice?		D	The EF for Natural Gas provided in section B.6.2 is provided by the manufacturer. It shall be clarified with default values from IPCC and generator efficiency that it is adequate. Historical data from electricity generation during the last years could be used. Annex E of the baseline information document of PPP-JI with natural gas generator characteristics has to be shown to the validation team.	<b>CAR10</b>	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.8.4. Are the calculations documented in a complete and transparent manner?		D	Section B.6.1 of the PDD shall specify calculations and assumptions to obtain the EF for natural gas and to calculate project emissions. These formulas shall be applied in section B.6.3 in a transparent manner. See B.8.3	<b>CAR10</b>	<b>OK</b>
B.8.5. Have conservative assumptions been used?		D	See B.8.3 and B.8.4	<b>CAR10</b>	<b>OK</b>
B.8.6. Are uncertainties in the project emissions estimates properly addressed?		D	See B.8.3 and B.8.4	<b>CAR10</b>	<b>OK</b>
<b>B.9. Leakage Ex-ante</b> It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
B.9.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?		D	According to AMS III.B no leakage calculation is required.	OK	<b>OK</b>
B.9.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?		D	N/A		
B.9.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?		D	N/A		
B.9.4. Are the calculations documented in a complete and transparent manner and (if applicable)?		D	N/A		

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.9.5. Have conservative assumptions been used (if applicable)?		D	N/A		
B.9.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?		D	N/A		
<b>B.10. Baseline GHG Emissions Ex-ante</b> The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
B.10.1. Are the baseline emissions boundaries clearly defined and do they sufficiently cover sources for baseline emissions?		D	Baseline emissions boundaries are clearly defined: six diesel generators in a decentralized system and small diesel generators for private use in some industries.	OK	OK
B.10.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?		D	Section B.6.1 of the PDD shall be updated with Baseline emissions calculations. Assumptions and calculations made to obtain the Diesel EF shall be included and described in the PDD. The validation team shall be provided with the Annex D of the PPP-JI document. See B.2.4	<del>CAR7</del>	OK
B.10.3. Have all relevant greenhouse gases and sources been evaluated?		D I	Only CO <sub>2</sub> has to be considered. See B.10.2	<del>CAR7</del>	OK
B.10.4. Do the methodologies for calculating baseline emissions comply with existing good practice?		D	See B.10.2 and B.2.4	<del>CAR7</del>	OK
B.10.5. Are the calculations documented in a complete and transparent manner?		D I	See B.10.2 and B.2.4	<del>CAR7</del>	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.10.6. Have conservative assumptions been used?		D	See B.10.2 and B.2.4	<b>CAR7</b>	<b>OK</b>
B.10.7. Are uncertainties in the baseline emissions estimates properly addressed?		D	See B.10.2 and B.2.4	<b>CAR7</b>	<b>OK</b>
<b>B.11. Emission Reductions Ex-ante</b> Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
B.11.1. Will the project result in fewer GHG emissions than the baseline case?		D	The project will result in fewer GHG emissions than the baseline case taking into account the different values of NCVs of diesel and natural gas and the more carbon content of diesel. Emissions reductions estimations are stated in section B.6.4. See B.8 and B.10	<b>CAR7</b> <b>CAR10</b>	<b>OK</b>
<b>C. Duration of the Project / Crediting Period</b> It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?		D	The project starting date is April 29 <sup>th</sup> , 2000. There is sufficient information from PPP-JI to demonstrate this issue. The operational lifetime coincide with the three renewable crediting periods, this aspect shall be clarified.	<b>CL14</b>	<b>OK</b>

\* MoV = Means of Verification, D= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?		D	PP have chosen a crediting period of seven years renewable two times. This project claims for retroactive CERs. According to para 4 of COP/MOP2 decision 1/CMP2. It shall be confirmed that the project conforms also to para 4 of COP/MOP1 decision 7/CMP1.	CL12	OK
<b>D. Environmental Impacts</b> It is assessed whether environmental impacts of the project are sufficiently addressed.					
D.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?		D I	According to section D.1 of the PDD Bolivian legislation requires an EIA for this activity. Detailed of this legislation shall be included in the PDD. See A.3.4	CL6	OK
D.1.2. Does the project comply with environmental legislation in the host country?		D I	See A.3.4	CL6	OK
D.1.3. Have environmental impacts been identified and addressed in the PDD and will the project create any adverse environmental effects?		D I	The PDD shall include section D.2 with information about relevant environmental impacts, its effects and monitoring. See requirement "11" in table 1.	CAR2	OK
<b>E. Comments by Local Stakeholder</b> Validation of the local stakeholder consultation process.					
E.1.1. Have relevant stakeholders been consulted?		D I	The SIA developed for the PPP-JI describe the stakeholder consultation process developed prior to the project implementation. A brief description of the stakeholders selection is included in section E.1 of the PDD.	OK	OK

\* MoV = Means of Verification, D= Document Review, I= Interview



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.1.2. Have appropriate media been used to invite comments by local stakeholders?		D I	In field surveys and consultations were carried out by a third party consulting company. Several interviews were hold with local authorities, citizens and business owners.	OK	OK
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?		D I	To be revised during the on site visit.	<del>GL13</del>	OK
E.1.4. Is a summary of the comments received provided?		D I	Section E.2 of the PDD included a summary of the comments received during the consultation process.	OK	OK
E.1.5. Has due account been taken of any comments received?		D I	Section E.3 of the PDD shall include a brief description of the actions carried out to take into account comments received during the consultation process.	<del>CAR11</del>	OK

\* MoV = Means of Verification, D= Document Review, I= Interview

**Table 3 Resolution of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<b>CAR.1</b> The DNA of Bolivia has not yet issued the Approval letter.	Table1 2, 3 & 4 requirement	Bolivian DNA issued the approval letter on February 27 <sup>th</sup> , 2007. This letter confirms project contribution to host country sustainable development.	CAR1 is solved
<b>CAR.2</b> There are the following discrepancies between the SSCCDM format and this PDD: <ul style="list-style-type: none"> <li>- Section A.1: version of the PDD not the AMS III.B</li> <li>- Section A.4.3 and B.6.4: table 3&amp;5 shall provide information only for the first crediting period of seven years.</li> <li>- Section B.4: Additionality information has to be included in section B.5. Section B.4 shall be completed according to the guidelines for completing CDM-SSC-PDD.</li> <li>- Section B.6.2 and B.7.1: The table formats can not be changed in any way.</li> <li>- Section B.6.3: This section does not provide the information and calculations required in the guidelines for completing CDM-SSC-PDD format.</li> <li>- Section B.8: This section is not included in the PDD.</li> <li>- Section D.2: This section is not included in the PDD. According to SSCPDD Word format downloadable from the CDM web page, this section shall exist.</li> <li>- Participants in Annex 1 shall be the same as</li> </ul>	Table1 11 requirement D.1.3	Section A.1 of the PDD has been amended accordingly. Tables 3&5 of sections A.4.3 & B.6.4 have been correctly amended. Section B.4 and section B.5 have been amended. Tables formats are according to SSC-PDD guidelines. Section B.6.3 includes a table with the energy demand for the crediting periods, but there is any information about the calculations and methods used to estimate data in table of section B.6.4. PP provides this information in Annex 3 of the PDD in a document entitled "baseline Information". Section B.8 of the PDD has been included. Section D.2 is now included. Table 1 have been amended to include only CRE as PP.	CAR2 is solved

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>the ones listed in table 4 of section A.3 of the PDD.</p> <p>The PDD shall include section D.2 with information about relevant environmental impacts, its effects and monitoring.</p>			
<p><b>CAR.3</b></p> <p>According to PDD information the project required training for the technicians in charge of operating the thermal plant, but there are neither provisions for meeting this training nor for maintenance needs, that were carried out.</p> <p>The PDD does not describe the training that was carried out for monitoring personnel.</p>	<p>Table 2</p> <p>A.2.5</p> <p>B.7.2</p>	<p>CRE has an integrated management system certified that includes procedures for training of personnel and maintenance activities.</p>	<p>CAR3 is solved</p>
<p><b>CAR.4</b></p> <p>Approved baseline methodology AMS III.B version 7 “Switching fossil fuels” is the selected baseline methodology. A most recent version is available in the CDM web site. PDD shall apply version 10 of this methodology. All the CARs, CLs and assertions described in this protocol are related with version 10 of the AMS III.B.</p>	<p>Table 2</p> <p>B.1.1</p>	<p>The PDD has been amended to apply the most recent version of the AMS III.B.</p>	<p>CAR4 is solved</p>
<p><b>CAR.5</b></p> <p>Section B.2 of the PDD shall justify the choice of the selected approved methodology. Table 4 of this section does not provide this justification.</p> <p>Section B.4 of the PDD does not provide formula and assumptions made to calculate</p>	<p>Table 2</p> <p>B.2.2</p>	<p>Table in section B.2 has been amended to justify approved methodology selection.</p> <p>Key assumptions and data used to determine Baseline emissions are included in Annex 3 and in documents: “Baseline information” and “Baseline emission factor calculation” provided to the validation team during the on site visit.</p>	<p>CAR5 is solved.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Baseline emissions.			
<b>CAR.6</b> According to para 4 of the AMS III.B the emission baseline are the emissions of the previous decentralized system, express in Kg CO <sub>2</sub> /kWh. Annex 3 of the PDD provides data for three of the decentralized power generators managed by CRE. PP shall provide data for the other diesel generators to calculate Baseline emissions	Table 2 B.2.4	The two documents mentioned above provided data for all the diesel generators of the previous decentralized system. According to these documents calculations have been made in a conservative manner and assumptions made were also conservative.	CAR6 is solved.
<b>CAR.7</b> Section B.4 shall provide information about the selection of the baseline scenario and the formula used and assumptions made to calculate baseline emissions, in accordance with the guidelines for completing the SSC-CDM-PDD. Section B.6.1 of the PDD shall be updated with Baseline emissions calculations. Assumptions and calculations made to obtain the Diesel EF shall be included and described in the PDD. The validation team shall be provided with the Annex D of the PPP-JI document.	Table 2 B.2.5 B.10.2 B.10.3 B.10.4 B.10.5 B.11.1	Baseline Scenario is described in the PDD and formula used and assumptions made are included in Annex 3. The validation team was provided with Annex D of the PPP-JI document which was revised to verify assumptions made to obtain diesel consumptions and electricity generation.	CAR7 is solved.
<b>CAR.8</b> Currently it can not be assessed since neither section B.7.1 nor B.7.2 describes quality procedures to be applied for monitoring	Table 2 B.3.3 B.4.3	Annex 4 of the PDD includes documents to correct this issue. All the procedures applied for meter readings, equipment calibration, monitoring frequency, data storage, fuel consumptions and electricity generation data storage	CAR8 is solved.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>electricity generation and fuel consumptions: meters, standards and legislation applicable, calibration, maintenance,...</p> <p>Sections B.7.1 &amp; B.7.2 of the PDD do not provide any information about the monitoring method and frequency, which shall be in accordance with para 12 of the General Guidance for AMS.</p> <p>Section B.7.2 of the PDD does not mention procedures for calibration and maintenance of monitoring equipment and installations.</p>	B.7.3	and any other matter related with monitoring is contained in procedures and instructions of the certified integrated management systems that comprises: ISO 9001, ISO 14001, ISO 17025 and OHSAS 18001.	
<p><b>CAR.9</b></p> <p>Section B.7.2 of the PDD does not mention procedures for calibration and maintenance of monitoring equipment and installations.</p>	<p>Table 2</p> <p>B.7.6</p> <p>B.7.7</p> <p>B.7.8</p>	Annex 4 of the PDD includes these procedures that are part of the certified integrated management system of CRE.	CAR9 is solved.
<p><b>CAR.10</b></p> <p>The EF for Natural Gas provided in section B.6.2 is provided by the manufacturer. It shall be clarified with default values from IPCC and generator efficiency that it is adequate. Historical data from electricity generation during the last years could be used. Annex E of the baseline information document of PPP-JI with natural gas generator characteristics has to be shown to the validation team.</p> <p>Section B.6.1 of the PDD shall specify calculations and assumptions to obtain the EF for natural gas and to calculate project</p>	<p>Table 2</p> <p>B.8.3</p> <p>B.8.4</p> <p>B.8.5</p> <p>B.8.6</p> <p>B.11.1</p>	Annex 4 of the PDD provides a document that clarifies natural gas EF calculation. Carbon emission for NG has been obtained from Bolivian National GHG Inventory and fuel consumptions have been obtained from manufacturer data. Annex E of the PPP-JI has been provided to the verification team.	CAR10 is solved.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
emissions. These formulas shall be applied in section B.6.3 in a transparent manner.			
<b>CAR.11</b> Section E.3 of the PDD shall include a brief description of the actions carried out to take into account comments received during the consultation process.	Table 2 E.1.5	Section E.3 of the PDD has been amended with some information. This section refers to a document included in Annex 5 of the PDD. This document describes all the environmental and socio-economic impacts of the project in the coverage area.	CAR11 is solved
<b>CL 1.</b> The project received a support of US\$ 2,315,000 from the joint Implementation pilot Project Program from the Dutch Government. The PDD does not mention any information of this public funding in section A.4.4 and in Annex II. Provide justification that this aid is not a diversion of Netherlands official development assistance (ODA).	Table1 requirement 7	Section A.4.4 of the PDD has been amended to address this issue. The only document provided by PP is the MoU between the Minister for Development Cooperation of the Netherlands and the Minister of Sustainable Development and Planning of Bolivia, which stated that the necessary funds for this project were provided by the Minister for Development Cooperation. Bolivian DNA has assured that these funds are not a diversion of Netherlands ODA, but there is not any official confirmation from Netherlands authorities although Netherlands confirm this issue verbally to DNA.	Netherlands affirmation that such funding is not a diversion of ODA is not yet provided.
<b>CL 2.</b> The PDD provide a map with the exact location of the project activity, but the geographical coordinates of this location shall be provided	Table 2 A.3.1	Geographical coordinates of the CRE plant are now included in the PDD.	CL2 is clarified
<b>CL 3.</b> Section A.2 of the PDD shall describe the contribution of the project activity to sustainable development. This information is included in chapter 5 of the AIJ document: "Socio-economic impact assessment for the San Ramón rural electrification project".	Table 2 A.3.1	Section A.2 of the PDD has been amended to include this information that was verify during the on site visit.	CL3 is clarified

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
According to the guidelines for completing the SSC-CDM-PDD it is necessary to include a brief schematic resume of this information in the PDD.			
<b>CL 4.</b> Section D.1 and D.2 of the PDD shall provide information about the positive and/or negative impacts arising from the EIA approved by the Ministry of sustainable Development of Bolivia.	Table 2 A.3.2	Section D.1 of the PDD has been updated with information about the regulatory framework in Bolivia for EIA development and approval. Section D.2 of the PDD include information about the impacts include in the EIA.	CL4 is clarified
<b>CL 5.</b> The PDD does not mention any information about National sustainable development policies for Bolivia. On the other hand, the Bolivian DNA has not yet issued the approval letter stating that the project contributes to the sustainable development of Bolivia.	Table 2 A.3.3	Approval letter from the Bolivian DNA stated that the project contribute to the sustainable development of Bolivia. Interview with the DNA provides the validation team with information about sustainable development policies in Bolivia.	CL5 is clarified
<b>CL 6.</b> Section B.5 of the PDD shall mention the relevant legislation applicable to the project and the permits and/or authorizations needed to carry out the activity. Section D.1 shall detailed Bolivian environmental legislation and the process to obtain the Environmental License which shall be provided to the validation team.	Table 2 A.3.4	The PDD has been amended to include this information.	CL6 is clarified
<b>CL 7.</b> Sections B.4 and B.5 of the PDD describe the technological, prevailing practices and Investment	Table 2	Section B.5 of the PDD has been amended to include all the information related with the additionality demonstration.	CL7 is solved

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>barriers that prevent this project from being implemented. All this information shall be include only in section B.5. On the other hand, taken into account that the main barrier was the Investment/financial one, it is necessary to provide the validation team with the financial analysis that demonstrate this assertion which could be put available to the public if required by the EB of the CDM.</p> <p>According to the UNFCCC web site, this project was considered an AIJ before 2002-02-12, with the support of the PPP-JI. There are two studies about the project (Socio-economic Impact Assessment and Baseline Information) developed for this programme but no report about the project was send to the UNFCCC-AIJ with the results of the implementation. PP shall clarify why.</p> <p>According to previous studies developed for the PPP-JI, it was possible to implement the project thanks to the aid of the PPP-JI. This economical support is only possible if the project contribute to GHG emission reductions according to the PPP-JI. The PDD shall provide information that demonstrates that the future registration of the project in the CDM and the generations of CERs were decisive to obtain the support of the PPP-JI. Annex A of the Baseline Study shall be provided to the validation team.</p>	B.2.1	<p>PP gave the validation team the economic evaluation of the project that was made prior to implementation, were it is stated that the project was only feasible with the grants of Netherlands.</p> <p>Due to different points of view between CRE and the other partners of the project regarding the CERs distribution, the process to validate the project was extremely delay and there were no report send to the UNFCCC-AIJ. Finally in 2007 CRE obtained the necessary support to carry out the validation and verification process.</p> <p>The MoU with the Netherlands Minister for Development Cooperation was given to the validation team. This document demonstrates that the consideration of carbon credits was decisive to obtain financial contribution from the PPP-JI of the Netherlands.</p>	
<p><b>CL 8.</b> The Baseline Information document mentioned two studies that had been taken</p>	<p>Table 2 B.2.3</p>	<p>The validation team was provided with the documents “Baseline Information” and “Socioeconomic impact assessment for the San Ramón Rural Electrification</p>	<p>CL8 is clarified</p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
into account to estimate the demand of electricity for baseline and project emissions. PP shall provide these documents to the validation team.		project". This last document includes the information needed to estimate the demand of electricity and was revised during the on site visit with PP.	
<p><b>CL 9.</b> During the on site visit the validation team shall revise decentralized system data for electricity generation and diesel fuel consumptions. CRE shall make these data available. During the on site visit the validation team shall receive information about the meters and methods used to monitor this parameters. According to AMS III.B para 4 the only baseline data is the emissions of the old decentralized system before 2000 expressed in kg CO<sub>2</sub>/kWh. To be revised during the on site visit.</p>	<p>Table 2 B.6.2 B.6.3 B.6.4</p>	<p>Documents: "Baseline information" and "Baseline emission factor calculation", provide information about the complete decentralised system and the method used and actions taken to obtain the baseline EF.  According to these documents the emission of the old decentralised system before 2000 in Kg CO<sub>2</sub>/KWh was obtained in accordance with AMS III.B.</p>	CL9 is solved.
<p><b>CL 10.</b> The currently operational and management structure of CRE that will be used for monitoring shall be described in section B.7.2 of the PDD. Section B.7.2 of the PDD shows a format for fuel monitoring and electricity production, but the persons in charge of monitoring and their responsibilities are not clearly described.</p>	<p>Table 2 B.7.1 B.7.4 B.7.5</p>	The currently operational and management structure of CRE and the personnel in charge of monitoring activities is included in the certified environmental management system of CRE and in the CRE laboratory accreditation for calibration activities in Bolivia. The validation team was able to revise this documents and section B./2 of the PDD include this information.	CL10 is clarified.
<p><b>CL 11.</b> The project starting date is April 29<sup>th</sup>, 2000.</p>	<p>Table C.1.1</p>	The operational lifetime of the generation equipment coincide with the two times renewable crediting period of 7	CL11 is clarified.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
There is sufficient information from PPP-JI to demonstrate this issue. The operational lifetime coincide with the three renewable crediting periods, this aspect shall be clarified.		years. The validation team was able to revise manufacturer specifications that demonstrate this issue.	
<b>CL 12.</b> PP have chosen a crediting period of seven years renewable two times. This project claims for retroactive CERs. According to para 4 of COP/MOP2 decision 1/CMP2, it shall be confirmed that the project conforms also to para 4 of COP/MOP1 decision 7/CMP1.	Table 2 C.1.2	According to EB decisions in EB meetings 25 and 27, the DOE shall provide evidence that the PP requested validation prior to 31 <sup>st</sup> December, 2005. In this case there are two matters that shall be taken into account. On the one hand CRE apply AENOR for validation budget in December 2005 and the offer N. 2005-CO2-36 dated on 2005-12-21 was send to CRE. On the other hand, CRE send a document of the project to apply for this quotation to several DOEs. Due to the lack of financial support to face the validation process CRE was not able to start the validation process until 2007.	CL12 is clarified but it does not follow exactly EB recommendations.
<b>CL 13.</b> Stakeholder consultation has to be revised during the on site visit.	Table 2 E.1.3	During the on site visit the validation team was able to interview San Ramon and San Javier local authorities that confirm information stated in section E of the PDD.	CL13 is solved

- o0o -

---

## VALIDATION REPORT

---

## APPENDIX B

---

## VALIDATORS QUALIFICATION

Date 2007-01-12  
Our ref.

## Minute

Of Auditor Qualification

Meeting n°  
Place Division of Systems Certification-DCS

Date 2007-01-12  
Hour

Attending the meeting

Chairman D. Jaime FONTANALS RODRÍGUEZ

Secretary Dña. Rocío ALFONSO PARDO

Members D. José Luis VALDÉS FERNÁNDEZ  
D. Ignacio OLALQUIAGA ARANGUREN  
D. José Luis TEJERA OLIVER  
D. Antonio SÁNCHEZ HERNÁNDEZ

Excused

### AGREEMENTS RELATED TO THE QUALIFICATION OF AUDITORS

The Qualification Committee, according to IE/DCS/066 "Specific Code for the processing and conducting of validation, registration, verification and certification of Kyoto Protocol Clean Development mechanism project activities", in the PE/DCS/004.04 "Qualification of auditor personnel of Management Systems", and once analyzed the documentary evidence, proceed with date 2007-01-12 to establish the following agreements related to the qualification of the auditor personnel.

## AENOR MADRID

D. Miguel CARRASCO GARCÍA

- **Qualified with date 2006-09-08** as VALIDATOR/VERIFIER in CDM according to CASE 2 (IE-DCS-066)
- **Qualified with date 2006-09-08** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 3 (IE-DCS-066)

D. Antonio CARRETERO PEÑA

- **Qualify with date 2005-10-26** as VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)
- **Qualified with date 2005-10-26** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)

D. Juan HERNÁN DIEZ

- **Qualified with date 2005-12-13** as VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)
- **Qualified with date 2005-12-13** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)

D. Javier VALLEJO DREHS (MADRID)

- **Qualified with date 2005-08-16** as VALIDATOR/VERIFIER in CDM according to CASE 2 (IE-DCS-066)
- **Qualified with date 2005-10-10** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 3 (IE-DCS-066)

## AENOR MEXICO

D. Rafael ARÉVALO JIMÉNEZ (MEXICO)

- **Qualified with date 2005-12-13** as VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)
- **Qualified with date 2005-12-13** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 3 (IE-DCS-066)

D. Agustín SALAS MARTÍNEZ (MEXICO)

- **Qualified with date 2006-07-13** as VALIDATOR/VERIFIER in CDM according to CASE 1 (IE-DCS-066)
- **Qualified with date 2006-07-13** as CHIEF VALIDATOR/VERIFIER in CDM according to CASE 2 (IE-DCS-066)

  
Rocío ALFONSO PARDO  
Secretary, Qualification Committee