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Validation Report

AES CCIT INTERNATIONAL LIMITED C/O AES

VALIDATION OF THE CDM-PROJECT:
PIABANHA RIVER HYDROELECTRIC PLANTS

REPORT NO. 1066138

2008, March 05

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1066138	2008-02-22	1	2008-03-05	-

Subject: Validation of a CDM Project	
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany	TÜV SÜD Contract Partner: TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich, Federal Republic of Germany
Client: AES CCIT International Limited c/o AES 4300 Wilson Boulevard, 11th floor Arlington, VA 22203	Project Site(s): 43°06'39.6"W; 22°17'17.2"S – PCH Posse 43°07'2.2"W; 22°13'33.9"S – PCH Monte Alegre 43°09'35.3"W; 22°11'50.8"S – PCH São Sebastião
Project Title: Piabanha River Hydroelectric Plants	
Applied Methodology / Version: ACM0002 / Version 06	Scope(s): 1
First PDD Version: Date of issuance: 2007-10-01 Version No.: 1 Starting Date of GSP 2007-10-05	Final PDD version: Date of issuance: 2008-02-21 Version No.: 3
Estimated Annual Emission Reduction:	71,006 tCO₂e
Assessment Team Leader: Martin Schroeder (TÜV SÜD)	Further Assessment Team Members: Johann Thaler (TÜV SÜD DO BRASIL)
Summary of the Validation Opinion: ☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively. ☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.	

Abbreviations

ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
ONS	National Dispatch Center (Operador Nacional do Sistema Eletrico)
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM-EB. The ultimate decision on the registration of a proposed project activity rests at the CDM Executive Board and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:
Piabanha River Hydroelectric Plants

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- Ø The Kyoto Protocol, in particular § 12
- Ø Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Ø Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Ø Decisions by the EB published under <http://cdm.unfccc.int>
- Ø Specific guidance by the EB published under <http://cdm.unfccc.int>
- Ø Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Ø The applied approved methodology
- Ø The technical environment of the project (technical scope)
- Ø Internal and national standards on monitoring and QA/QC
- Ø Technical guideline and information on best practice

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

Once TÜV SÜD receives a first PDD version, it is made publicly available on the internet at TÜV SÜD's webpage as well as on the UNFCCC CDM-webpages for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP will be repeated) and the final PDD will form the basis for the final evaluation as presented by this report. Information on the first and on the final PDD version is presented at page 1.

The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project. TÜV SÜD developed a “cook-book” for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

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

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	Reference	Comments	PDD in GSP	Final PDD
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / criterion.	Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.	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. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column	Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (p), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification.	Conclusions are presented in the same manner based on the assessment of the final PDD version.

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests	Ref. to table 1	Summary of project owner response	Validation team conclusion
<i>If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.</i>	<i>The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".</i>

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	Id. of CAR/CR 1	Explanation of the Conclusion for Denial
<i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i>	<i>Identifier of the Request.</i>	<i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.</i>

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Ø Assessment Team Leader (ATL)
- Ø Greenhouse Gas Auditor (GHG-A)
- Ø Greenhouse Gas Auditor Trainee (T)
- Ø Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

The validation team was consisting of the following experts (the responsible Assessment Team Leader is written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Martin Schröder	ATL	p	p	
Johann Thaler	GHG-A	p	p	p

Martin Schröder is an appointed GHG-Auditor by the certification body "climate and energy" of TÜV SÜD Industrie Service GmbH. Within TÜV SÜD he is responsible for the validation and verification of forestry and agriculture based GHG mitigation projects. He passed extensive internal training in the field of auditing and is ATL of this proposed project activity.

Johann Thaler graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Based in Brazil he has been working for TÜV SÜD as a GHG auditor on freelance basis since March 2005. He attended and successfully finished a ISO 14001 Environmental Management Internal Auditing Training.

2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On October 08-09, 2007 TÜV SÜD performed an interview on-site with project participants to confirm selected information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in the context of the on-site visit.

Name	Organisation
Clauber Leite	Environmental Department, AES Rio PCH Ltda
Samy Hotimsky	Environmental Department, AES Rio PCH Ltda
Roberto Sattamini	Engineer, AES Rio PCH Ltda
Alessandra Marinheiro	Project Director, AES Rio PCH Ltda

2.4 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

2.5 Internal Quality Control

As final step of a validation the validation report and the protocol have to undergo an internal quality control procedure by the Certification Body "climate and energy", i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD's Certification Body whether a project will be submitted for requesting registration by the EB or not.

3 SUMMARY OF FINDINGS

As informed above all findings are summarized in table 2 of the attached validation protocol.

History of the validation process

The audit team has been provided with a draft PDD in October 2007. Based on this documentation a document review and a fact finding mission in form of an on-site audit have taken place. Afterwards the client decided to revise the PDD according to the CARs and CRs indicated in the audit process. The final PDD version submitted in February 2008 serves as the basis for the assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development.

Project description

The proposed project activity is being developed and managed by AES Rio PCH Ltda., which is a special purpose company owned by AES Tiete S.A. (99 %) and AES Minas PCH Ltda. (1 %). It comprises three run-of-the-river hydroelectric plants with capacities of 15.8 MW (PCH Posse), 18.6 MW (PCH Monte Alegre) and 17.2 MW (PCH São Sebastião), summing up to 51.6 MW of installed capacity, on the Piabanha River, located in the State of Rio de Janeiro, Brasil. The hydroelectric plants do not require accumulating water for operation, thus very small reservoirs (0.4570 km², 0.03190 km², 0.04903 km²) are used only to assure adequate water flow at the intake point.

The main objective of the project is to generate power from clean, renewable hydroelectric power and to supply it to the Brazilian South-Southeast-Midwest interconnected grid while contributing to the regional/local economic development. The project activity reduces emissions of greenhouse gas (GHG) by avoiding electricity generation by fossil fuel sources (and CO₂ emissions), which would be generating (and emitting) in the absence of the project.

Findings

In total the assessment team expressed 5 Clarification Requests and 43 Corrective Action Requests.

The key findings during the validation process were related to the provision of information which was missing or not updated, inconsistencies in the information within the PDD and between the PDD and other CDM related documents, to the IRR calculation and application of benchmark, to the barrier and common practice analysis. Besides, parameters were missing or not complete.

Considering these findings the PDD version 1 has been revised and the actual PDD version 3 is in compliance with the CDM requirements.

Baseline calculation

The emissions factor calculation sheet for 2006 has been submitted to the validation team. The calculation of the emissions factor has been verified by the validation team. The validation team can confirm the ex-ante application of the project's emissions factor of 2006 which is 0.2826 tCO₂/MWh. On June 19, 2008 the Brazilian government published the new emissions factor for 2007. The Brazilian DNA decided that all projects, which started the GSP after that date, have to

apply the new calculated emissions factor. As the proposed project activity was uploaded to the GSP on October 05, 2007, i.e. clearly before the deadline set up by the Brazilian DNA, TÜV SÜD accepted the application of the 2006 emissions factor.

Project emissions do not have to be considered when determining the emission reductions of the proposed project activity as the power density of the project is bigger than 10 W/m². The calculation for the determination of emission reductions is correctly applied.

The baseline scenario is the continuation of the current situation of electricity supplied by large hydro and thermal power stations from the South-Southeast-Midwest Brazilian interconnected grid.

Additionality

The additionality of the project was checked carefully. In doing so the assessment team has put the main focus on the following issues.

The assessment team has reviewed the proof for the early consideration of the project. The consideration of CDM is evidenced by the meeting of the AES Tietê S.A Board of Directors on January 29, 2007 approving the investment decision. The date of this meeting is at the same time the project's starting date. It may be considered as first real action of the proposed project activity. The purchase contracts of the main equipment were still under negotiation with potential suppliers at the time of writing this validation report, thus it was not possible to choose the date of the purchase agreement as project's starting date.

In step one of applying the tool for the demonstration and assessment of additionality (additionality tool) it is concluded that there exist alternatives to the proposed project activity, the additionality criteria is fulfilled. Step two of the additionality tool, the investment analysis (benchmark analysis), describes in detail that the proposed project is not financially attractive without CER revenues. The assessment team has checked all sources of the IRR calculation (see spreadsheet "Piabanha Model_MGM_17out07.v3") as well as the correct application of the benchmark (government bonds), as presented in Sub-steps 2b and 2c of the PDD. The IRR (8.8 %) is clearly below the benchmark of 11.14 %. Even by conducting a sensitivity analysis which takes into account 10 % variations in Engineering, Procurement and Construction costs, energy prices and Operation and Maintenance costs, the IRR remains below the benchmark. It may be concluded that the project is financially unattractive without CER revenues. The IRR calculation sheet will be uploaded together with the PDD.

The barrier analysis (Step 3) of the additionality tool substantiates the investment analysis.

In step 4, common practice analysis, hydropower stations that are operational and under construction in the State of Rio de Janeiro State, where the Piabanha Hydroelectric Plants are located, are assessed. There are 08 small hydro power plants in operation and 6 small hydro plants under construction. All of the ones under construction are financed by the federal incentive program PROINFA. All of the operational small hydro plants, started operation, except for the Comendador Venâncio plant which is owned by Companhia Energética Paulista, more than 40 years ago. They were built during a different historical context, including a set of barriers not comparable to the ones faced by modern projects. The Comendador Venâncio plant, built in 2005, used the CDM mechanism to surpass financial hurdles.

To conclude the additionality assessment it may be stated that the proposed project activity is without doubt additional.

The project boundary, the project's starting date as well as the starting date of the crediting period are clearly defined in the last submitted PDD.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

webpage: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=4003&Ebene1_ID=26&Ebene2_ID=1163&mode=1	
Starting date of the global stakeholder consultation process: 2007-10-05	
Comment submitted by: No comments	Issues raised: -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Piabanha River Hydroelectric Plants

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology 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. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

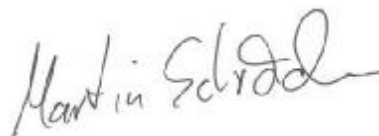
Munich, 2008-06-30



Werner Betzenbichler

Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 2008-06-30



Martin Schröder

Assessment Team Leader

Validation of the CDM Project:
Piabanha River Hydroelectric Plants



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Annex 1: Validation Protocol

Validation Protocol

Project Title: Piabanha River Hydroelectric Plants

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Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	2	Yes. The used project title clearly enables to identify the unique CDM activity.	p	p
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	2	The version and date of the PDD is mentioned.	p	p
A.1.3.	Is this consistent with the time line of the project's history?	1,2	Yes. It is consistent with the time line of the project's history.	p	p
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	1,2	Corrective Action Request 1: 1. The description in A.2. should provide information why and how the project reduces CO2 emissions. 2. Information about total estimated emission reductions should be provided in A.2.	CAR 1	p
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	1,2,3 4,5	The following documents have been submitted to the validation team: 1. Technical characteristics of the equipment of the three hydro-plants 2. Evidence about the size of the reservoirs 3. Concession contracts (ANEEL Resolutions) 4. ANEEL Resolutions about the transfer of concession from Gua-scor Geratec Ltda. to AES Rio PCH Ltda. PPA contract does not exist yet. The prevision is at the end of 2007.	CAR 2	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			<u>Corrective Action Request 2:</u> 1. Project participants (PPs) are requested to revise the size of the reservoir of the hydro-plant Posse. The correct value according to the information found on-site is 0.032 km ² . 2. GPS coordinates of Monte Alegre and São Sebastião should be revised and it should be submitted evidence of the used coordinates. 3. The installed capacity should be revised for the hydroplants Monte Alegre e Posse. 4. The time schedule of the project activity should be submitted to the validation team.		
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	1,2,3 4,5	See A.2.2.	See CAR 2	p
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	1,2	The GPS coordinates indicated in A.2. are not consistent with the ones indicated in A.4.1.4 and/or not complete. See A.2.2.	See CAR 2	p
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	2	Yes. The form required for the indication of project participants is correctly applied.	p	p
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	1,2	<u>Corrective Action Request 3:</u> The (voluntary) participation of the project participants at the CDM project should be confirmed by each of them by submitting a dec-	CAR 3	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			laration to the validation team.		
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1,2, 10	Yes. Information on participants provided in A.3. is consistent with details provided in Annex 1 of the PDD. However, it is not clear according to the PDD that AES Tiete S/A. owns 99 % of AES Rio PCH Ltda. <u>Corrective Action Request 4:</u> PPs are requested to inform in the PDD that AES Tiete S/A holds 99 % of AES Rio PCH Ltda.	CAR 4	p
A.4. Technical description of the project activity					
A.4.1. Location of the project activity					
A.4.1.1.	Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1,2	<u>Corrective Action Request 5:</u> 1. The project participants should submit evidences for the indicated GPS dates and inform from where such GPS coordinates were taken. Besides, it seems that the indicated GPS coordinates are not complete (see also A.2.2.). 2. It should be provided an exact postal address of the project sites.	CAR 5	p
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	1,2,6	There have been presented land purchase contracts to the validation team. It was shown to the validation team during the on-site visit that AES Rio PCH Ltda. is the owner of the land where the small hydro plants will be constructed.	p	p
A.4.2. Category(ies) of project activity					

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.2.1. To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	2	The project activity belongs to category 1. The category is correctly identified.	p	p
A.4.3. Technology to be employed by the project activity				
A.4.3.1. Does the technical design of the project activity reflect current good practices?	1,2,18,28	See A.4.3.2.	See CAR 6	p
A.4.3.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1,2,3	Yes. The description of the technology to be applied provides sufficient and transparent input to evaluate its impact on the greenhouse gas balance. <u>Corrective Action Request 6:</u> 1. Some more specifications of the turbines (like manufacturer, nominal rotation, nominal outflow) and generators (like model, manufacturer) should be indicated in the PDD. 2. Annual average flow-rate of the river and waterfall should be mentioned in the PDD.	CAR 6	p
A.4.3.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	1,2,3	There has been no technology transfer for the principal equipment from annex-I-countries to the host country due to the project activity.	p	p
A.4.3.4. Is the technology implemented by the project activity environmentally safe?	1,2,3	The technology is widely implemented in Brazil and is considered to be environmentally safe.	p	p
A.4.3.5. Is the information provided in compliance with actual situation or planning?	1,2,3	Yes. The information provided is in compliance with actual situation or planning.	p	p
A.4.3.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than	1,2,3	The project uses state of the art technology according to information obtained on-site.	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
any commonly used technologies in the host country?				
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2,3	No. The project technology is not likely to be substituted by other or more efficient technologies within the project period.	p	p
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,2,3,7	Technical know-how will be transferred to local operation and maintenance teams by formal training programs and manuals. One of its tasks is to carry out periodically internal training for the operators and maintenance efforts. A document of realized training about the new measurement system was presented to the validation team. People who participated in this training will probably be responsible for teaching of operators in the hydro-plants of the project activity.	p	p
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	1,2,3,7	See A.4.3.8.	p	p
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1,2	See A.2.2.	See CAR 2	p
A.4.4. Estimated amount of emission reductions over the chosen crediting period				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	2	The form required for the indication of projected emission reductions is correctly applied.	p	p
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	1,2	The figures provided are consistent with other data presented in the PDD. However, the figures should be revised.	See CAR 28	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		See B.6.3.1.		
A.4.5. Public funding of the project activity				
A.4.5.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	1,2	No public funding is involved for the project activity. The project activity has been financed by own equity through AES Tiete, which is the only shareholder of AES Rio.	p	p
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1,2	The information provided is consistent with the details given in remaining chapters of the PDD.	p	p
B. Application of a baseline and monitoring methodology				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1,2, 14, 15	Everything is indicated.	p	p
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	1,2, 14, 15	Version 6 is the most recent version of ACM0002.	p	p
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1. Is the applied methodology considered the most appropriate one?	1,2, 14,	Yes. The applied methodology is considered to be the most appropriate one.	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD										
	15													
Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with “No”														
B.2.2. Criterion 1: Type of capacity addition by renewable energy	1,2, 14, 15	See A.2.2. <table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>CAR 2</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	CAR 2	Evidences provided in the PDD?	Yes	Compliance verified?	Yes	See CAR 2	p
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	Yes													
Compliance provable?	CAR 2													
Evidences provided in the PDD?	Yes													
Compliance verified?	Yes													
B.2.3. Criterion 2: Exclusion of fuel switching activities	1,2, 14, 15	<u>Corrective Action Request 7:</u> It should be mentioned in the PDD that the project activity does not involve any fuel switching activities. <table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>No</td></tr><tr><td>Compliance provable?</td><td>No</td></tr><tr><td>Evidences provided in the PDD?</td><td>Confirmation obtained on-site that there are no fuel switching activities involved</td></tr><tr><td>Compliance verified?</td><td>Confirmation obtained on-site</td></tr></table>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	No	Compliance provable?	No	Evidences provided in the PDD?	Confirmation obtained on-site that there are no fuel switching activities involved	Compliance verified?	Confirmation obtained on-site	CAR 7	p
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	No													
Compliance provable?	No													
Evidences provided in the PDD?	Confirmation obtained on-site that there are no fuel switching activities involved													
Compliance verified?	Confirmation obtained on-site													

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B.2.4. Criterion 3: Defined electricity grid boundaries	1,2, 14, 15	The electricity grid to which the project belongs to is not explicitly mentioned in the PDD. Corrective Action Request 8: Information on characteristics of the grid to which the project belongs to should be provided in B.2. and/or B.3. of the PDD. <table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>No</td></tr><tr><td>Compliance provable?</td><td>No</td></tr><tr><td>Evidences provided in the PDD?</td><td>No</td></tr><tr><td>Compliance verified?</td><td>CAR 7</td></tr></table>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	No	Compliance provable?	No	Evidences provided in the PDD?	No	Compliance verified?	CAR 7	CAR 8	p
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	No													
Compliance provable?	No													
Evidences provided in the PDD?	No													
Compliance verified?	CAR 7													
B.2.5. Criterion 4: Approved inclusion in other methodologies (if applied only)	1,2	Not applicable.	p	p										
B.3. Description of the sources and gases included in the project boundary														
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with “No”														
B.3.1. Source: Fugitive Emissions from non-condensable gases (geothermal activities only) Gas(es): CO ₂ , CH ₄ Type: Project Emissions	1,2, 14, 15	Not applicable. <table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td></td></tr><tr><td>Inclusion / exclusion justified?</td><td></td></tr><tr><td>Explanation / Justification sufficient?</td><td></td></tr><tr><td>Consistency with monitoring plan?</td><td></td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?		Inclusion / exclusion justified?		Explanation / Justification sufficient?		Consistency with monitoring plan?		p	p
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?														
Inclusion / exclusion justified?														
Explanation / Justification sufficient?														
Consistency with monitoring plan?														
B.3.2. Source: Emissions from combustion of fossil fuels (geothermal activities only) Gas(es): CO ₂ Type: Project Emissions	1,2, 14, 15	Not applicable. <table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td></td></tr><tr><td>Inclusion / exclusion justified?</td><td></td></tr><tr><td>Explanation / Justification sufficient?</td><td></td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?		Inclusion / exclusion justified?		Explanation / Justification sufficient?		p	p		
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?														
Inclusion / exclusion justified?														
Explanation / Justification sufficient?														

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		<table><tr><td>Consistency with monitoring plan?</td><td></td></tr></table>	Consistency with monitoring plan?											
Consistency with monitoring plan?														
B.3.3. Source: Emissions from the reservoir (new hydroelectric activities only) Gas(es): CO ₂ , CH ₄ Type: Project Emissions	1,2, 14, 15	No project emissions, as power density is greater than 10 W/m2. <u>Corrective Action Request 9:</u> It should be clearly justified why project emissions are excluded from the project boundary. <table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>No</td></tr><tr><td>Explanation / Justification sufficient?</td><td>No</td></tr><tr><td>Consistency with monitoring plan?</td><td>No</td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?	Yes	Inclusion / exclusion justified?	No	Explanation / Justification sufficient?	No	Consistency with monitoring plan?	No	CAR 9	p
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?	Yes													
Inclusion / exclusion justified?	No													
Explanation / Justification sufficient?	No													
Consistency with monitoring plan?	No													
B.3.4. Source: Emissions from electricity generation in fossil fuel fired power plants of the project electricity system Gas(es): CO ₂ Type: Baseline Emissions	1,2, 14, 15	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	p	p
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?	Yes													
Inclusion / exclusion justified?	Yes													
Explanation / Justification sufficient?	Yes													
Consistency with monitoring plan?	Yes													
B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): CO ₂ Type: Baseline Emissions	1,2, 14, 15	<u>Corrective Action Request 10:</u> It should be clearly explained in the PDD why the North-Northeast electricity subsystem and the electricity imported from other countries (like Argentina, Uruguay) are not included in the project boundary. <table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>No</td></tr><tr><td>Inclusion / exclusion justified?</td><td>No</td></tr><tr><td>Explanation / Justification sufficient?</td><td>No</td></tr><tr><td>Consistency with monitoring plan?</td><td>No</td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?	No	Inclusion / exclusion justified?	No	Explanation / Justification sufficient?	No	Consistency with monitoring plan?	No	CAR 10	p
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?	No													
Inclusion / exclusion justified?	No													
Explanation / Justification sufficient?	No													
Consistency with monitoring plan?	No													

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD										
B.3.6. Source: Emissions from electricity generation in fossil fuel fired power plants of imported electricity (project electricity consumption) Gas(es): CO ₂	1,2, 14, 15	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed by the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	p	p
Boundary checklist	Yes / No													
Source and gas(es) discussed by the PDD?	Yes													
Inclusion / exclusion justified?	Yes													
Explanation / Justification sufficient?	Yes													
Consistency with monitoring plan?	Yes													
B.3.7. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	1,2, 14, 15	The spatial and technological boundaries are not explicitly mentioned in the PDD. <u>Corrective Action Request 11:</u> PPs are requested to mention the spatial and technological boundaries in the PDD.	CAR 11	p										
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario														
B.4.1. Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to?	1,2, 14, 15	In B.6.1. “Explanation of methodological choices” it is clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to.	p	p										
B.4.2. In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?	1,2, 14, 15	Not applicable, as neither modification nor retrofit given.	p	p										
B.4.3. In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be	1,2, 14, 15	Not applicable, as neither modification nor retrofit given.	p	p										

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
replaced?					
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):					
B.5.1.	Is evidence provided, that CDM has been considered seriously in the decision to proceed with the project activity (CDM decision before project start) ?	1,2, 14, 15, 16	<u>Clarification Request 1:</u> It is not clear to the validation team yet how CDM had been considered before the decision was taken to invest into the project activity. Project participants should explain and provide evidence.	CR 1	p
B.5.2.	Have realistic and credible alternatives been identified providing comparable outputs or services? (step 1a)	1,2, 14, 15, 16	Yes. 3 alternatives that provide electricity with comparable quality and properties have been identified in the PDD.	p	p
B.5.3.	Is the project activity without CDM included in these alternatives? (step 1a)	1,2, 14, 15, 16	It seems that as the first alternative mentioned in the PDD is meant the project activity without CDM. However, it is not indicated "the project activity without CDM". <u>Corrective Action Request 12:</u> The first alternative which is mentioned in B.5. (Sub-step 1a) of the PDD should be clearly indicated as the alternative "the project activity without CDM".	CAR 12	p
B.5.4.	Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations? (step 1b)	1,2, 14, 15, 16	All the 3 alternatives mentioned in the PDD comply with applicable laws and regulations.	p	p
B.5.5.	In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that	1,2, 14,	Not applicable.	p	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Is evidence available concerning that statement? (step 1b)		15, 16			
B.5.6.	In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	1,2, 14, 15, 16	Yes. It is used the benchmark analysis (option III of the additionality tool), which is mentioned in the PDD .	p	p
B.5.7.	In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	1,2, 14, 15, 16	Not applicable.	p	p
B.5.8.	In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2, 14, 15, 16	Not applicable.	p	p
B.5.9.	In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2,9 14, 15, 16	It is identified the IRR as financial indicator. During the on-site visit the IRR Cash-flow calculation was analysed together with the project director. It was noticed that much of the information provided in the excel-sheet "Piabanha Model_MGM_25set07" is not relevant and the used emissions factor was not exactly correct. Besides, some references for the macroeconomic premises are missing. <u>Corrective Action Request 13:</u> The Cash-flow (IRR) calculation sheet "Piabanha Model_MGM_25set07" should be revised. Unnecessary information should be taken out, the EF should be corrected and references for the macroeconomic premises should be included.	CAR 13	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.10. In case of Option II : Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity? In case of Option III: Is the calculation of financial figures for this indicator correctly done for the project activity?	1,2,9 14, 15, 16	See B.5.10.	CAR 13	p
B.5.11. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	1,2,9 14, 15, 16	<u>Corrective Action Request 14:</u> The benchmark "Selic Rate" is not appropriate as benchmark in the opinion of the validation team, as the maturity of the project activity (over 30 years) and Selic (overnight) are not comparable. PPs are requested to opt for another benchmark, such as e.g. government bonds with similar maturity as the project activity or Weighted Average Cost of Capital (WACC). Project participants are requested to revise the PDD and exclude Selic as benchmark.	CAR 14	p
B.5.12. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	1,2, 14, 15, 16	<u>Corrective Action Request 15:</u> 1. Prevailing practice barrier is not retraceable to the validation team as Piabanha small hydro project is not the "first of its kind". A prevailing practice barrier does not exist for a small hydro plant in Brazil in the opinion of the validation team. Prevailing practice barrier should be taken out of the PDD. 2. Institutional barriers mentioned in the PDD should be updated and explained in more detail.	CAR 15	p
B.5.13. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	1,2, 14, 15, 16	See B.5.13.	See CAR 15	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.14. In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1,2, 14, 15, 16	B.4. and sub-step 3b) are contra-dictionary. It is not clear which of the alternatives (2 or 3) is in the end the baseline scenario. <u>Corrective Action Request 16:</u> The PPs are requested to submit consistent information about the “most likely baseline scenario”. It is recommended to include alternative 3 into alternative 2 as the increase of thermoelectric power plants is a tendency in Brazil and makes part of the current (future) electricity mix.	CAR 16	p
B.5.15. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	1,2, 14, 15, 16	1. The PDD mentions that 08 small hydro power plants are in operation, which correspond to approximately 0.4% of the total electricity generated in the state of Rio de Janeiro. This is documented by a link to ANEEL (as of August 13th, 2007). However, the website also provides information about small hydro-plants projects under construction (with an increasing tendency of small hydro-plants) and approved projects (between 1998 and 2004). This information has not been considered in the PDD yet. 2. The common practice analysis is only made for the State of Rio de Janeiro, but not for the grid South-Southeast-Midwest to which the project activity belongs to. <u>Corrective Action Request 17:</u> 1. Information about similar activities of small hydro-plants in the State of Rio de Janeiro should be provided in more detail. PPs are requested to consider small hydro-plants under construction and information about approved projects (between 1998 and 2004). Information should be documented. 2. Besides, the common practice analysis should be applied not only for the State Rio de Janeiro but also for the grid South-Southeast-Midwest to which the project activity belongs to.	CAR 17	p

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B.5.16. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	1,2, 14, 15, 16	See B.5.16.	See CAR 17	p
B.5.17. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers?		Clarification Request 2: Project participants should inform the validation team why the CDM will alleviate the economic and financial hurdles and identified barriers. Information should be added in the PDD.	CR 2	p
B.6. Emissions reductions				
<i>B.6.1. Explanation of methodological choices</i>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1,2, 14, 15	Corrective Action Request 18: In B.6.1. the definition of project emissions and leakage is not correct. Please refer to the methodology and revise the definitions.	CAR 18	p
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1,2, 14, 15	Yes. Every selection of options offered by the methodology is correctly justified and in line with the situation verified on-site.	p	p
B.6.1.3. Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2, 14, 15	Not applicable, as project emissions are zero, as the power density is bigger than 10 W/m ² .	p	p
B.6.1.4. Are the formulae required for the determi-	1,2,	Corrective Action Request 19:	CAR	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
nation of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	14, 15	1. The second equation 2, 3 and 5 are not completely consistent as per the methodology ACM0002, version 6. Those equations should be revised. 2. Step 2 (Build Margin) should be explicitly mention that the Build Margin emission factor is calculated ex-ante. 3. Equation 2 is mentioned twice in the PDD. Numeration of the equations should be corrected.	19	
B.6.1.5. Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?	1,2, 14, 15	Yes. The choice of options to determine the emissions factor is justified in a suitable and transparent manner. The weight for OM and BM is 50 % for each parameter.	p	p
B.6.1.6. In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	1,2, 14, 15	Not applicable, as no alternative weighing factors used.	p	p
B.6.1.7. In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	1,2, 14, 15	Not applicable, as no alternative weighing factors used.	p	p
B.6.1.8. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2, 14, 15	Leakage does not have to be considered according to the methodology.	p	p
B.6.1.9. Are formulae required for the determination of emission reductions correctly pre-	1,2,	B.6.1.4.	CAR 19	p

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sented?	14, 15		19	
B.6.2. Data and parameters that are available at validation				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,2, 14, 15	The list of parameters presented in chapter B.6.2. is not considered to be complete. See B.6.2.7., B.6.2.8., B.6.2.12., B.6.2.13.	See CAR 23 See CAR 24 See- CAR 26 See CAR 27	p
B.6.2.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	1,2, 14, 15	The choice of ex-ante of the OM factor is clearly specified in the PDD, however nothing is explicitly defined for the BM factor. Corrective Action Request 20: It should be clearly specified in the PDD the choice of ex-ante or ex-post vintage of the BM factor.	CAR 20	p
Fill in the required amount of sub checklists for monitoring parameter and comment any line answered with "No"				
B.6.2.3. Parameter Title: Annual electricity supplied to the grid prior to retrofit (applicable only for retrofit and modification activities)	1,2, 14, 15	Not applicable , as no retrofit project		p
		Data Checklist	Yes / No	
		Title in line with methodology?		
		Data unit correctly expressed?		
		Appropriate description of parameter?		
		Source clearly referenced?		
		Correct value provided?		

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		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
B.6.2.4. Parameter Title: Emission factor of the grid (EF _{CM} in tCO ₂ /MWh)	1,2, 14, 15	<u>Corrective Action Request 21:</u> The applied value for the emission factor of the grid should not be uprounded. The correct value is 0.2826 tCO ₂ /MWh.		CAR 21	p
		Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	No		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	N/A		
B.6.2.5. Parameter Title: Operating margin (EF _{OM} in tCO ₂ /MWh) emission factor of the grid	1,2, 14, 15	<u>Corrective Action Request 22:</u> -In “justification of data” it should not be referred to option a but to option b. -It should be explicitly mention that the OM is calculated ex-ante.		CAR 22	p
		Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		

Table 1 is applicable to ACM0002, version 06 with ex-ante determination of CM

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
			option (a) but option (b)		
		Measurement method correctly described?	N/A		
B.6.2.6. Parameter Title: Build margin ($EF_{BM}^{intCO_2}/MWh$) emission factor of the grid	1,2, 14, 15	It is not explicitly mentioned in the PDD that the CO2 Build Margin emission factor is determined ex-ante. See B.6.2.2.		See CAR 20	p
		Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	No		
		Measurement method correctly described?	N/A		
B.6.2.7. Parameter Title: fuel consumption of each power source (F, mass or volume unit)	1,2, 14, 15	The parameter "fuel consumption of each power source" is not mentioned in the PDD. Corrective Action Request 23: It should be mentioned the parameter "fuel consumption of each power source" with its necessary explanations according to the methodology.		CAR 23	p
		Data Checklist	Yes / No		
		Title in line with methodology?	No		
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided?			
		Has this value been verified?			

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD																		
		<table><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table>		Has this value been verified?		Choice of data correctly justified?		Measurement method correctly described?															
Has this value been verified?																							
Choice of data correctly justified?																							
Measurement method correctly described?																							
B.6.2.8. Parameter Title: emission coefficient of each fuel (COEF of grid, in tCO ₂ / mass or volume unit of the fuel)	1,2, 14, 15	The parameter “emission coefficient of each fuel” is not mentioned in the PDD. <u>Corrective Action Request 24:</u> It should be mentioned the parameter “emission coefficient of each fuel” with its necessary explanations according to the methodology. <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table>		Data Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided?		Has this value been verified?		Choice of data correctly justified?		Measurement method correctly described?		CAR 24	p
Data Checklist	Yes / No																						
Title in line with methodology?	No																						
Data unit correctly expressed?																							
Appropriate description of parameter?																							
Source clearly referenced?																							
Correct value provided?																							
Has this value been verified?																							
Choice of data correctly justified?																							
Measurement method correctly described?																							
B.6.2.9. Parameter Title: electricity generation of each power source (GEN in MWh)	1,2, 14, 15	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr></table>		Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	p	p		
Data Checklist	Yes / No																						
Title in line with methodology?	Yes																						
Data unit correctly expressed?	Yes																						
Appropriate description of parameter?	Yes																						
Source clearly referenced?	Yes																						
Correct value provided?	Yes																						
Has this value been verified?	Yes																						
Choice of data correctly justified?	Yes																						

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	N/A		
B.6.2.10. Parameter Title: surface area of full reservoir level (for new hydroelectric activities only)	1,2, 14, 15	<u>Corrective Action Request 25:</u> -It should be more precisely mentioned in the PDD by whom and how the surface area of full reservoir level has been measured. -Value should be provided in B.6.2. of the PDD.		CAR 25	p
		Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	No		
		Correct value provided?	No		
		Has this value been verified?	No		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	No		
B.6.2.11. Parameter Title: fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)	1,2, 14, 15	Data Checklist	Yes / No	p	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	N/A		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	N/A		

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																		
B.6.2.12. Parameter Title: electricity imports from connected grid to the grid (in MWh)	1,2, 14, 15	The parameter “electricity imports” is not mentioned in the PDD. <u>Corrective Action Request 26:</u> It should be mentioned the parameter “electricity imports” with its necessary explanations according to the methodology. <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided?		Has this value been verified?		Choice of data correctly justified?		Measurement method correctly described?		CAR 26	p
Data Checklist	Yes / No																					
Title in line with methodology?	No																					
Data unit correctly expressed?																						
Appropriate description of parameter?																						
Source clearly referenced?																						
Correct value provided?																						
Has this value been verified?																						
Choice of data correctly justified?																						
Measurement method correctly described?																						
B.6.2.13. Parameter Title: CO ₂ emission coefficient of fuels used in connected grids (COEF of connected grid, in tCO ₂ / mass or volume unit of the fuel)	1,2, 14, 15	The parameter “CO2 emission coefficient of fuels used in connected grids” is not mentioned in the PDD. <u>Corrective Action Request 27:</u> It should be mentioned the parameter “CO2 emission coefficient of fuels used in connected grids” with its necessary explanations according to the methodology. <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided?		Has this value been verified?		Choice of data correctly justified?		CAR 27	p		
Data Checklist	Yes / No																					
Title in line with methodology?	No																					
Data unit correctly expressed?																						
Appropriate description of parameter?																						
Source clearly referenced?																						
Correct value provided?																						
Has this value been verified?																						
Choice of data correctly justified?																						

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described?		
B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	1,2,8	<u>Corrective Action Request 28:</u> The estimation of emission reductions should bear in mind the exact application of the emissions factor (0,2826 tCO ₂ /MWh) instead of using the up-rounded number (0,283 tCO ₂ /MWh). This will result in lower total emission reductions. Besides, the estimate of emission reductions may change due to a possible change of the installed capacity of the hydro-plants (see CAR 2) and the load factor which have still to be confirmed. PPs are requested to revise the emission reduction calculation.	CAR 28	p
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	1,2	The GHG calculations are documented in a complete and transparent manner.	p	p
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1,2,8	Yes. The data provided in this section is consistent with data as presented in other chapters of the PDD. However, the figure for total emission reductions should be revised. See B.6.3.1.	See CAR 28	p
B.6.4. Summary of the ex-ante estimation of emission reductions				
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2	Yes. The project will result in fewer GHG emissions than the baseline scenario.	p	p
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	2	Yes. The table required for the indication of projected emission reductions is correctly applied.	p	p
B.6.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	1,2	Yes. The projection is in line with the envisioned time schedule for the project's implementation and the indicated crediting period.	See CAR 2	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
implementation and the indicated crediting period?		However, the project's time schedule should be still submitted to the validation team. See A.2.2.		
B.6.4.4. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1,2,8	The data provided in this section is in consistency with data presented in other chapters of the PDD. However, it should be corrected by applying the exact emissions factor. See B.6.3.1.	See CAR 28	p
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. Data and parameters monitored				
B.7.1.1. Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	1,2, 14, 15	As it has been confirmed on-site that the OM and BM are chosen as ex-ante vintage. The list of parameters presented by chapter B.7.1. may not be considered to be complete. See B.7.1.3. <u>Clarification Request 3:</u> -It is not clear to the validation team what bi-directionally mean. Information should provided in the PDD. -Information given in the second paragraph of B.7 is confusing and should be revised.	See CAR 30 CR 3	p
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with "No"				
B.7.1.2. Parameter Title: Electricity supplied to the grid (in MWh)	1,2, 14, 15	<u>Corrective Action Request 29:</u> The validation team has obtained information on-site that the electricity supplied to the grid will be measured every 5 minutes and be forwarded to CCEE. Besides, every hour the data will be inte-	CAR 29 CR 4	p

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		grated. Clarification Request 4: The validation team should be informed how the load factor was calculated. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>CR</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	CR	Has this value been verified?	Yes	Measurement method correctly described?	No	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes		
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	CR																											
Has this value been verified?	Yes																											
Measurement method correctly described?	No																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	Yes																											
QA/QC procedures appropriate?	Yes																											
B.7.1.3. Electricity imported from the grid (in MWh)		Clarification Request 5: Project participants should confirm that there is no electricity import due to the project activity. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/OC procedures described?</td><td></td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided for estimation?		Has this value been verified?		Measurement method correctly described?		Correct reference to standards?		Indication of accuracy provided?		QA/OC procedures described?		CR 5	p		
Monitoring Checklist	Yes / No																											
Title in line with methodology?	No																											
Data unit correctly expressed?																												
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QA/OC procedures described?																												

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		QA/QC procedures described?				
		QA/QC procedures appropriate?				
B.7.1.4. Parameter Title: surface area of full reservoir level (for new hydroelectric activities only)	1,2, 14, 15	Corrective Action Request 30: The parameter “surface area of full reservoir level” has to be indicated as monitored parameter as per the methodology ACM0002.			CAR 30	p
		Monitoring Checklist	Yes / No			
		Title in line with methodology?	No			
		Data unit correctly expressed?				
		Appropriate description of parameter?				
		Source clearly referenced?				
		Correct value provided for estimation?				
		Has this value been verified?				
		Measurement method correctly described?				
		Correct reference to standards?				
		Indication of accuracy provided?				
		QA/QC procedures described?				
		QA/QC procedures appropriate?				
B.7.1.5. Parameter Title: Quantity of steam produced (for geothermal projects only)	1,2, 14, 15	Not applicable , as no geothermal project.			p	p
		Monitoring Checklist	Yes / No			
		Title in line with methodology?				
		Data unit correctly expressed?				
		Appropriate description of parameter?				
		Source clearly referenced?				
		Correct value provided for estimation?				
		Has this value been verified?				
		Measurement method correctly described?				
		Correct reference to standards?				
		Indication of accuracy provided?				
		QA/QC procedures described?				
		QA/QC procedures appropriate?				

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B.7.1.6. Parameter Title: Fraction of CO ₂ in steam produced (for geothermal projects only)	1,2, 14, 15	Not applicable , as no geothermal project. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?		Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided for estimation?		Has this value been verified?		Measurement method correctly described?		Correct reference to standards?		Indication of accuracy provided?		QA/QC procedures described?		QA/QC procedures appropriate?		p	p
Monitoring Checklist	Yes / No																											
Title in line with methodology?																												
Data unit correctly expressed?																												
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Measurement method correctly described?																												
Correct reference to standards?																												
Indication of accuracy provided?																												
QA/QC procedures described?																												
QA/QC procedures appropriate?																												
B.7.1.7. Parameter Title: Fraction of CH ₄ in steam produced (for geothermal projects only)	1,2, 14, 15	Not applicable , as no geothermal project. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?		Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided for estimation?		Has this value been verified?		Measurement method correctly described?		Correct reference to standards?		Indication of accuracy provided?		QA/QC procedures described?		QA/QC procedures appropriate?		p	p
Monitoring Checklist	Yes / No																											
Title in line with methodology?																												
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Indication of accuracy provided?																												
QA/QC procedures described?																												
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B.7.1.8. Parameter Title: Quantity of steam generated during well testing (for geothermal projects only)	1,2, 14, 15	Not applicable , as no geothermal project. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?		Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided for estimation?		Has this value been verified?		Measurement method correctly described?		Correct reference to standards?		Indication of accuracy provided?		QA/QC procedures described?		QA/QC procedures appropriate?		p	p
Monitoring Checklist	Yes / No																											
Title in line with methodology?																												
Data unit correctly expressed?																												
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Measurement method correctly described?																												
Correct reference to standards?																												
Indication of accuracy provided?																												
QA/QC procedures described?																												
QA/QC procedures appropriate?																												
B.7.1.9. Parameter Title: Fraction of CO ₂ in steam during well testing (for geothermal projects only)	1,2, 14, 15	Not applicable , as no geothermal project. <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?		Data unit correctly expressed?		Appropriate description of parameter?		Source clearly referenced?		Correct value provided for estimation?		Has this value been verified?		Measurement method correctly described?		Correct reference to standards?		Indication of accuracy provided?		QA/QC procedures described?		QA/QC procedures appropriate?		p	p
Monitoring Checklist	Yes / No																											
Title in line with methodology?																												
Data unit correctly expressed?																												
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Correct reference to standards?																												
Indication of accuracy provided?																												
QA/QC procedures described?																												
QA/QC procedures appropriate?																												
B.7.1.10. Parameter Title:	1,2,	Not applicable , as no geothermal project.	p	p																								

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Fraction of CH ₄ in steam during well testing (for geothermal projects only)	14, 15	Monitoring Checklist	Yes / No		
		Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
		B.7.1.11. Parameter Title: CO ₂ emission coefficient of fuel used by the geothermal plant (for geothermal projects only)	1,2, 14, 15		
Monitoring Checklist	Yes / No				
Title in line with methodology?					
Data unit correctly expressed?					
Appropriate description of parameter?					
Source clearly referenced?					
Correct value provided for estimation?					
Has this value been verified?					
Measurement method correctly described?					
Correct reference to standards?					
Indication of accuracy provided?					
QA/QC procedures described?					
QA/QC procedures appropriate?					
B.7.2. Description of the monitoring plan					

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	1,2	See B.7.2.2.	See CAR 31	p
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,2	During the on-site visit the validation team was informed that AES Tiete will be responsible for data collection and archiving. The PDD does not provide any information about responsibilities for data collection and archiving yet, i.e. who exactly will be responsible for data collection and archiving. <u>Corrective Action Request 31:</u> PPs are requested to provide information in the PDD that AES Tiete will be responsible for data collection and archiving of the data.	CAR 31	p
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	1,2	Yes. The monitoring plan provides current good monitoring practice.	p	p
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1,2	<u>Corrective Action Request 32:</u> Monitoring information in Annex 4 should be revised as there are some misleading information (as e.g. ..ex-ante monitoring..., ..the project site and the head office..., ...the staff responsible...)	CAR 32	p
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
B.8.1. Is there any indication of a date when the baseline was determined?	2	Yes. The baseline was determined on October 01, 2007.	p	p
B.8.2. Is this consistent with the time line of the PDD history?	2	Yes. It is consistent with the time line of the PDD history.	p	p
B.8.3. Is the information on the person(s) / en-	2	Yes. The persons/entities responsible for the application of the	p	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
tity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?			baseline and monitoring methodology are: § Demóstenes Barbosa Silva, AES Tietê § João M. Franco, MGM International SRL (technical consultant)		
B.8.4.	Is information provided whether this person / entity is also considered a project participant?	2	The PDD does not inform that AES Tiete is not project participant. <u>Corrective Action Request 33:</u> Project participants are requested to inform in the PDD that AES Tiete is not project participant.	CAR 33	p
C. Duration of the project activity / crediting period					
C.1. Duration of the project activity					
C.1.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2	The project starting date is 01/01/2008 and is reasonable according to the information found on-site. However, the project's time schedule should be still submitted to the validation team. See A.2.2. The operational lifetime is clearly defined with 30 years.	CAR 2	p
C.2. Choice of the crediting period and related information					
C.2.1.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1,2	The project participants have chosen a renewable crediting period of 7 years, beginning on October 01, 2009. However, it is not indicated the phrase "The crediting period will start on October 01, 2009, or on the date of registration of the CDM project activity, whichever is later".	CAR 34	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<u>Corrective Action Request 34:</u> PPs are requested to indicate the phrase "The crediting period will start on October 01, 2009, or on the date of registration of the CDM project activity, whichever is later" in C.2.2.1.		
D. Environmental impacts				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been sufficiently described?	1,2, 11 12	Yes. The analysis of the environmental impacts of the project activity has been sufficiently described.	p	p
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	1,2, 11 12	An EIA is necessary, has been realized and been approved.	p	p
D.1.3. Will the project create any adverse environmental effects?	1,2, 11 12	The project will not create any significant negative environmental impacts (See D.2. of the PDD).	p	p
D.1.4. Were transboundary environmental impacts identified in the analysis?	1,2, 11 12	No transboundary environmental impact may be identified. <u>Corrective Action Request 35:</u> The PDD should mention that no transboundary environmental impacts occur due to the project activity.	CAR 35	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	1,2, 11, 12	The environmental impacts are considered to be very small and not significant.	p	p
D.2.2.	Does the project comply with environmental legislation in the host country?	1,2, 11, 12	The environmental installation licenses of all three small hydro-plants have been submitted to the validation team. However, GUASCOR is still mentioned as project owner in the licenses. <u>Corrective Action Request 36:</u> PPs are requested to submit the protocols issued by the environmental authority to the validation team evidencing that the environmental licenses are transferred to AES Rio.	CAR 36	p
E. Stakeholders' comments					
E.1. Brief description how comments by local stakeholders have been invited and compiled					
E.1.1.	Have relevant stakeholders been consulted?	1,2, 13	Yes. There have been sent invitation letters to various stakeholders mentioned in the PDD. <u>Corrective Action Request 37:</u> It is not clear according to the information provided in the PDD when and how (postal, Email etc.) the invitations to stakeholders were sent. This information should be provided in the PDD.	CAR 37	p

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E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1,2 13	The invitation letters have been submitted by postal to the stakeholders.	p	p
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?	1,2 13	The Brazilian DNA gives guidance how the local stakeholder process has to be conducted. The validation team may confirm that the process has been performed as required.	p	p
E.1.4.	Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1,2, 13	Yes. The undertaken stakeholder process is described in a complete and transparent manner.	p	p
E.2. Summary of the comments received					
E.2.1.	Is a summary of the stakeholder comments received provided?	1,2, 13	No comments received so far.	p	p
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	1,2, 13	No comments so far, so no adjustment of the project has been necessary so far.	p	p
F. Annexes 1 – 4					
Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	1,2	Yes. The information provided is consistent with the one given under section A.3.	p	p
F.1.2.	Is the information on all private participants and directly involved Parties presented?	1,2	Yes. The information on all private participants is presented.	p	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Annex 2: Information regarding public funding					
F.1.3.	Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1,2	No public funding is involved.	p	p
F.1.4.	If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	1,2	Not applicable as no public funding is involved.	p	p
Annex 3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1,2	Additional background information on baseline data is consistent with data presented by other sections of the PDD. However, the emissions factor should be indicated with 4 decimals and not up rounded. See B.6.3.1.	See CAR 28	p
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1,2	See F.1.5. and B.6.3.1.	See CAR 28	p
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	1,2	See F.1.5. and B.6.3.1.	See CAR 28	p
Annex 5: Monitoring information					
F.1.8.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1,2	See B.7.2.4.	See CAR 32	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
F.1.9. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1,2	See B.7.2.4.	See CAR 32	p
F.1.10. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1,2	See B.7.2.4.	See CAR 32	p
F.1.11. Bibliography	2	It is not indicated a bibliography with the references used in the PDD. <u>Corrective Action Request 38:</u> A bibliography with all references used in the PDD should be mentioned at the end of the PDD.	CAR 38	p

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Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Action Requests			
<u>Corrective Action Request 1:</u> 1. The description in A.2. should provide information why and how the project reduces CO2 emissions. 2. Information about total estimated emission reductions should be provided in A.2.	A.2.1.	Section A.2 was revised to include information on why and how the project reduces CO2 emissions, as well as the estimated quantity of emission reductions per year.	DOE answer 15.12.2007: A.2. of the last submitted PDD provides information how the project reduces CO2 emissions and information about the total estimated emission reductions. CAR 1 is considered to be resolved. p
<u>Corrective Action Request 2:</u> 1. Project participants (PPs) are requested to revise the size of the reservoir of the hydro-plant Posse. The correct value according to the information found on-site is 0.032 km2. 2..GPS coordinates of Monte Alegre and São Sebastião should be revised and it should be submitted evidence of the used coordinates. 3. The installed capacity should be revised for the hydroplants Monte Alegre e Posse. 4. The time schedule of the project activity should be submitted to the validation team.	A.2.2.	1. The correct value of 0.032 km2 for the size of the reservoir of the hydro-plant Posse has been revised; 2. The GPS coordinates for all small hydro plants were revised by a technical team, and location maps sent to the validation team. 3. The installed capacity has been revised to be consistent with ANEEL concession contracts; 4. A time schedule was provided to the validation team, and included in the PDD in Section A.4.3.	DOE answer 15.12.2007: 1. Reservoir size has been corrected in the last submitted PDD. p 2. GPS coordinates have been revised. Evidence was submitted. p 3. Installed capacities of all three hydro-plants are consistent with ANEEL concession contracts. p 4. The time schedule should be included in the PDD. DOE answer 15.02.2008: 4. The time schedule has been included in the last submitted PDD. p CAR 2 is considered to be resolved. p

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<u>Corrective Action Request 3:</u> The (voluntary) participation of the project participants at the CDM project should be confirmed by each of them by submitting a declaration to the validation team.	A.3.2.	A declaration to the validation team was submitted.	<u>DOE answer 15.12.2007:</u> Declaration has been submitted. CAR 3 is considered to be resolved. p
<u>Corrective Action Request 4:</u> PPs are requested to inform in the PDD that AES Tiete S/A holds 99 % of AES Rio PCH Ltda.	A.3.3.	The information was added to section B.5 Sub-step 2.b.	<u>DOE answer 15.12.2007:</u> Information has been added. CAR 4 is considered to be resolved. p
<u>Corrective Action Request 5:</u> 1. The project participants should submit evidences for the indicated GPS dates and inform from where such GPS coordinates were taken. Besides, it seems that the indicated GPS coordinates are not complete (see also A.2.2.). 2. It should be provided an exact postal address of the project sites.	A.4.1.1.	1. The GPS coordinates for all small hydro plants were revised by a technical team, and location maps sent to the validation team. 2. There is no exact postal address for the project sites, given that they still have to be built. A postal address will be assigned at the end of the construction period.	<u>DOE answer 15.12.2007:</u> 1. GPS coordinates are o.k. in the last submitted PDD. Evidence is provided. 2. Answer may be accepted. CAR 5 is considered to be resolved. p

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<u>Corrective Action Request 6:</u> 1. Some more specifications of the turbines (like manufacturer, nominal rotation, nominal outflow) and generators (like model, manufacturer) should be indicated in the PDD. 2. Annual average flow-rate of the river and waterfall should be mentioned in the PDD.	A.4.3.2.	Additional technical parameters have been added to section A.4.3. The nominal tension of the generator for all hydro-plants was corrected to 6.9 kV. The document "Ficha Tecnica" for Sao Sebastiao includes the wrong unit for the generator potential. The correct unit is MVA as included in the PDD and not MW.	<u>DOE answer 15.12.2007:</u> 1. Nominal tension of the generator (of all hydro-plants) and Potential of the generator (Sao Sebastiao) are not consistent between PDD and "Ficha Tecnica". Please revise. 2. Average flow-rate of the river and waterfall are indicated in the last submitted PDD. p <u>DOE answer 15.02.2008:</u> 1.Information in the last PDD is correct. p CAR 6 is considered to be resolved. p
<u>Corrective Action Request 7:</u> It should be mentioned in the PDD that the project activity does not involve any fuel switching activities.	B.2.3.	It was mentioned in the PDD on section B.2 that the project activity does not involve any fuel switching activities.	<u>DOE answer 15.12.2007:</u> The last submitted PDD informs that the project activity does not involve fuel switching activities. CAR 7 is considered to be resolved. p
<u>Corrective Action Request 8:</u> Information on characteristics of the grid to which the project belongs to should be provided in B.2. and/or B.3. of the PDD.	B.2.4.	Information on characteristics of the grid to which the project belongs to was provided under B.3 of the PDD.	<u>DOE answer 15.12.2007:</u> Information of the relevant grid has been provided in the last submitted PDD. CAR 8 is considered to be resolved. p
<u>Corrective Action Request 9:</u> It should be clearly justified why project emissions are excluded from the project boundary.	B.3.3.	It was made clear in section B.3 of the PDD that there are no project emissions as power density is greater than 10 W/m2.	<u>DOE answer 15.12.2007:</u> The last submitted PDD justifies why there are no project emissions. CAR 9 is considered to be resolved. p

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<u>Corrective Action Request 10:</u> It should be clearly explained in the PDD why the North-Northeast electricity subsystem and the electricity imported from other countries (like Argentine, Uruguay) are not included in the project boundary.	B.3.5.	An explanation of the project boundary as the S-SE-CO system was included in section B.3. Imported electricity from other countries was included in the operating margin calculation as can be verified in the spreadsheet.	<u>DOE answer 15.12.2007:</u> Explanation has been given. CAR 10 is considered to be resolved. p
<u>Corrective Action Request 11:</u> PPs are requested to mention the spatial and technological boundaries in the PDD.	B.3.7.	The spatial and technological boundaries were mentioned under B.3 of the PDD.	<u>DOE answer 15.12.2007:</u> The spatial and technological boundaries are mentioned in the last submitted PDD. CAR 11 is considered to be resolved. p
<u>Corrective Action Request 12:</u> The first alternative which is mentioned in B.5. (Sub-step 1a) of the PDD should be clearly indicated as the alternative "the project activity without CDM".	B.5.4.	The first alternative was clearly indicated as the alternative "without being realized as a CDM project activity".	<u>DOE answer 15.12.2007:</u> The last submitted PDD clearly mentions the first alternative as the "project activity without CDM". CAR 12 is considered to be resolved. p
<u>Corrective Action Request 13:</u> The Cash-flow (IRR) calculation sheet "Piabanha Model_MGM_25set07" should be revised. Unnecessary information should be taken out, the EF should be corrected and references for the macroeconomic premises should be included.	B.5.10.	A revised calculation sheet "Piabanha Model_MGM_17outt07" was forwarded to the validation team including the requested corrections. Cell B39 was corrected to sum cell B38.	<u>DOE answer 15.12.2007:</u> The revised IRR calculation sheet "Piabanha Model_MGM_17outt07" has been submitted to the validation team. The main assumptions and algorithms have been verified by the validation team. However, cell B39 (Assumptions) is not correct <u>DOE answer 15.02.2008:</u> Correction has been provided in the last submitted Excel sheet "Piabanha Model_MGM_17out07.1". CAR 13 is considered to be resolved. p

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Corrective Action Request 14:

The benchmark "Selic Rate" is not appropriate as benchmark in the opinion of the validation team, as the maturity of the project activity (over 30 years) and Selic (overnight) are not comparable. PPs are requested to opt for another benchmark, such as e.g. government bonds with similar maturity as the project activity or Weighted Average Cost of Capital (WACC). Project participants are requested to revise the PDD and exclude Selic as benchmark.

B.5.12.

We have excluded the "Selic Rate" and have adopted a government bond rate (i.e. Global BRL 2028) as the financial benchmark.

1. The benchmark, a government bond with maturity in 2028 and issued in 2007, was selected instead of the previous one.

2. Figure 4.0 was revised to consider the Base Case IRR without CER income. The Excel sheet was revised to include the information of the IRR without CER income. The IRR with or without CER income is calculated by switching Cell I21 in the Assumptions worksheet to No.

The sensitivity analysis was conducted with the IRR without CER income. The sensitivity on the energy prices is performed by modifying Cell I25 in the Assumptions worksheet. The sensitivity on EPC costs (or investment costs) is performed by modifying Cell I18.

3. The variation of investment costs was already included in the sensitivity analysis by means of considering a +/- 10% variation in EPC costs.

The Excel sheet was revised to calculate IRR for the same period of time (until 2028) as the government benchmark. This was performed by modifying Cell B9 (IRR Calculation spreadsheet) to include only Net Cash Flow up to

DOE answer 15.12.2007:

1. It is not retraceable to the validation team why the benchmark (government bond) were chosen with maturity in 2014 whereas the financial indicator (IRR) is calculated based on 26 years. Project participants should justify and use the same maturity for both financial indicator and benchmark. Besides, it should be justified in the PDD why bonds from 29/01/2007 were taken.

2. Sub-step 2c mentions that the IRR results in 10.6% considering CER revenues. However, this is contradictory to the information given in Figure 4 of the PDD where as Base Case is mentioned an IRR of 10.6 %. The sensitivity analysis has to be conducted with the IRR without CER income. Besides, the IRR (10.6 %) in the excel-sheet "Piabanha Model_MGM_17out07" (IRR calculation) is indicated without CER revenues in the opinion of the validation team. The IRR of 9.9 % as indicated in the PDD (without revenues) is not mentioned in the Excel sheet. Project participants are requested to revise.

3. The sensitivity analysis should also include the variation of investment costs.

DOE answer 15.02.2008:

1. Project participants are requested to calculate the IRR for the same period of time (until 2028) as the government bond benchmark. The indicated IRR of 9.8 % is based on a time period beyond 2028. IRR and benchmark has to be based on the same time period, otherwise it does not reflect a conservative approach. Please revise.

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<u>Corrective Action Request 14 (Continuation)</u>		2028. A new sensitivity analysis for O&M was included. Instructions to verify the results of the sensitivity analysis were sent to the validator.	2.The results of the sensitivity analysis "Piabanha Model_MGM_17out07.1" is different to the figures provided in the PDD. Please revise and include the calculation of the sensitivity analysis detailed into the excel sheet. 3.Why does the sensitivity analysis not include the variation of operational and maintenance costs? <u>DOE answer 21.02.2008:</u> 1. IRR and benchmark are based on the same time period in the last submitted PDD and calculation sheet. p 2. Sensitivity analysis was revised and is consistent with the figures indicated in the PDD. p 3. The last submitted sensitivity analysis includes the variation of operational and maintenance costs. p CAR 14 is considered to be resolved. p
<u>Corrective Action Request 15:</u> 1. Prevailing practice barrier is not retraceable to the validation team as Piabanha small hydro project is not the "first of its kind". A prevailing practice barrier does not exist for a small hydro plant in Brazil in the opinion of the validation team. Prevailing practice barrier should be taken out of the PDD. 2. Institutional barriers mentioned in the PDD should be updated and explained in more detail.	B.5.13.	The concept of prevailing practice as understood as the "first of its kind" has been taken out of section B.5 of the PDD. The institutional barrier argument was updated and explained in more detail.	<u>DOE answer 15.12.2007:</u> 1. Prevailing practice barrier was taken out of the PDD as required. p 2. Institutional barriers are explained in more detail in the last submitted PDD. p CAR 15 is considered to be resolved. p

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<u>Corrective Action Request 16:</u> The PPs are requested to submit consistent information about the “most likely baseline scenario”. It is recommended to include alternative 3 into alternative 2 as the increase of thermoelectric power plants is a tendency in Brazil and makes part of the current (future) electricity mix.	B.5.15.	We have included alternative 3 into alternative 2 at the demonstration of the “most likely baseline scenario”, so , just two project alternatives were included under B.4.	<u>DOE answer 15.12.2007:</u> Answer may be accepted. CAR 16 is considered to be resolved. p
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<u>Corrective Action Request 17:</u> 1. Information about similar activities of small hydro-plants in the State of Rio de Janeiro should be provided in more detail. PPs are requested to consider small hydro-plants under construction and information about approved projects (between 1998 and 2004). Information should be documented. 2. Besides, the common practice analysis should be applied not only for the State Rio de Janeiro but also for the grid South-Southeast-Midwest to which the project activity belongs to.	B.5.16.	The common practice analysis was updated to include the requested information. A discussion regarding the hydropower plants in operation in the State of Rio de Janeiro was included in Sub-step 4b) in the PDD. A Table was prepared indicating the kind of benefits received by small hydro-plants (those in operation and those under construction) in the State of Rio de Janeiro in Sub-step 4b). A reference for the PROINFA programme was included in sub-step 4b).	<u>DOE answer 15.12.2007:</u> Sub-step 4b) of the PDD should discuss distinctions between the hydropower plants in operation in the State of Rio de Janeiro (there are 08 small hydro power plants in operation) and the proposed project activity. It should be clear that the proposed project activity not enjoys certain benefits like other projects that rendered it financially attractive or that the project activity faces barriers to which other projects are not subject. All small hydro-plants (those in operation and those under construction) in the State of Rio de Janeiro should be mentioned in a Table and it should be indicated the kind of benefits (e.g. PROINFA or governmental subsidies or foreign funding) which each project has enjoyed and the proposed project activity doesn't. <u>DOE answer 15.12.2007:</u> Please indicate the reference of the PROINFA programme in sub-step 4b) <u>DOE answer 21.02.2008:</u> Reference of the PROINFA programme has been included in the last submitted PDD. CAR 17 is considered to be resolved. p
<u>Corrective Action Request 18:</u> In B.6.1. the definition of project emissions and leakage is not correct. Please refer to the methodology and revise the definitions.	B.6.1.1.	The definition of project emissions and leakage was corrected in B.6.1.	<u>DOE answer 15.12.2007:</u> Definitions of project emissions and leakage have been corrected. CAR 18 is considered to be resolved. p

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<u>Corrective Action Request 19:</u> 1. The second equation 2, 3 and 5 are not completely consistent as per the methodology ACM0002, version 6. Those equations should be revised. 2. Step 2 (Build Margin) should be explicitly mention that the Build Margin emission factor is calculated ex-ante. 3. Equation 2 is mentioned twice in the PDD. Numeration of the equations should be corrected.	B.6.1.4.	Equations for section B.6.1 were revised and numeration corrected. It was explicitly mentioned in Step 2 that the emission factor for Build Margin is calculated ex-ante. Equation (2) was corrected.	<u>DOE answer 15.12.2007:</u> 1. Equation (2) is not correct. Please revise. 2. It is explicitly mentioned that the Build Margin is calculated ex-ante. p <u>DOE answer 15.02.2008:</u> 1. Equation (2) has been corrected in the last submitted PDD. p CAR 19 is considered to be resolved. p
<u>Corrective Action Request 20:</u> It should be clearly specified in the PDD the choice of ex-ante or ex-post vintage of the BM factor.	B.6.2.2.	It was clearly specified in the PDD the choice of an ex-ante vintage for the BM factor under B.6.1 step 2.	<u>DOE answer 15.12.2007:</u> According to the last submitted PDD it is clear that the choice of ex-ante vintage for the BM factor is chosen. CAR 20 is considered to be resolved. p
<u>Corrective Action Request 21:</u> The applied value for the emission factor of the grid should not be uprounded. The correct value is 0.2826 tCO₂/MWh.	B.6.2.4.	A value of 0.2826 tCO ₂ /Mwh was applied.	<u>DOE answer 15.12.2007:</u> EF is not uprounded anymore. CAR 21 is considered to be resolved. p
<u>Corrective Action Request 22:</u> -In "justification of data" it should not be referred to option a but to option b. -It should be explicitly mention that the OM is calculated ex-ante.	B.6.2.5.	It was referred to as option b, and it was explicitly mentioned that the OM is calculated ex-ante.	<u>DOE answer 15.12.2007:</u> Corrections and addings made as requested. CAR 22 is considered to be resolved. p

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<u>Corrective Action Request 23:</u> It should be mentioned the parameter “fuel consumption of each power source” with its necessary explanations according to the methodology.	B.6.2.7.	The parameter fuel consumption was included with necessary explanations. ONS does not provide this data, only the type of power plant and daily energy generation per plant operating in the electric system. Based on this information, we apply plant specific efficiency data and fossil fuel conversion efficiencies as stated in the PDD.	<u>DOE answer 15.12.2007:</u> The source of the parameter “fuel consumption of each power source” is not retraceable to the validation team. Project participants should justify why not ONS data are used. <u>DOE answer 15.02.2008:</u> Answer is retraceable and may be accepted. CAR 23 is considered to be resolved. p :
<u>Corrective Action Request 24:</u> It should be mentioned the parameter “emission coefficient of each fuel” with its necessary explanations according to the methodology.	B.6.2.8.	The parameter emission coefficient of each fuel was included with necessary explanations.	<u>DOE answer 15.12.2007:</u> The parameter “emission coefficient of each fuel” is mentioned in the last submitted PDD. CAR 24 is considered to be resolved. p
<u>Corrective Action Request 25:</u> -It should be more precisely mentioned in the PDD by whom and how the surface area of full reservoir level has been measured. -Value should be provided in B.6.2. of the PDD.	B.6.2.10.	It was mentioned by whom and how the surface area of the full reservoir was estimated. More technical details were presented to the validator based on the basic engineering reports for each small hydro plant. Values were provided in B.6.2.	<u>DOE answer 15.12.2007:</u> Information has been added in the last submitted PDD. CAR 25 is considered to be resolved. p
<u>Corrective Action Request 26:</u> It should be mentioned the parameter “electricity imports” with its necessary explanations according to the methodology.	B.6.2.12.	The parameter electricity imports was included with necessary explanations.	<u>DOE answer 15.12.2007:</u> The parameter “Electricity imports” has been included in the last submitted PDD. CAR 26 is considered to be resolved. p
<u>Corrective Action Request 27:</u> It should be mentioned the parameter “CO2 emission coefficient of fuels used in connected grids” with its necessary explanations according to the methodology.	B.6.2.13.	The parameter CO2 emission coefficient of fuels used in connected grids was included with necessary explanations.	<u>DOE answer 15.12.2007:</u> The parameter CO2 emission factor of fuels is mentioned in the last submitted PDD. CAR 27 is considered to be resolved. p

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<u>Corrective Action Request 28:</u> The estimation of emission reductions should bear in mind the exact application of the emissions factor (0,2826 tCO₂/MWh) instead of using the up-rounded number (0,283 tCO₂/MWh). This will result in lower total emission reductions. Besides, the estimate of emission reductions may change due to a possible change of the installed capacity of the hydro-plants (see CAR 2) and the load factor which have still to be confirmed. PPs are requested to revise the emission reduction calculation.	B.6.3.1.	The emission reduction calculations have been revised according to an Excel spreadsheet sent to TUV local validator. The new emission reduction schedule considered the assured energy formalized with ANEEL. A technical document for each small hydro plant describing the assured energy calculation performed (and the load factor) was also sent to TUV local validator. The estimation of emission reductions used the exact factor of 0,2826 tCO₂/MWh) instead of using the up-rounded number (0,283 tCO₂/MWh).	<u>DOE answer 15.12.2007:</u> Even though the values for firm energy (energia assegurada) in the technical documents are slightly different to the values indicated in the excel-spreadsheets, the applied values may be accepted by the validation team, as they are more conservative. The load factors have been evidenced as well by the reports of firm energy. Emission reductions calculation has been revised. CAR 28 is considered to be resolved. p
<u>Corrective Action Request 29:</u> The validation team has obtained information on-site that the electricity supplied to the grid will be measured every 5 minutes and be forwarded to CCEE. Besides, every hour the data will be integrated.	B.7.1.2.	This information was included under B.7.1.	<u>DOE answer 15.12.2007:</u> Information has been included in B.7.1. of the last submitted PDD. CAR 29 is considered to be resolved. p
<u>Corrective Action Request 30:</u> The parameter “surface area of full reservoir level” has to be indicated as monitored parameter as per the methodology ACM0002.	B.7.1.3.	The parameter “surface area of full reservoir level” was indicated as a monitored parameter under B.7.1.	<u>DOE answer 15.12.2007:</u> The parameter “surface area of full reservoir level” has been included in B.7.1. of the last submitted PDD. CAR 30 is considered to be resolved. p

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<u>Corrective Action Request 31:</u> PPs are requested to provide information in the PDD that AES Tiete will be responsible for data collection and archiving of the data.	B.7.2.2.	Information was provided that AES Tiete will be responsible for data collection and archiving of the data under B.7.2 and Annex 4.	<u>DOE answer 15.12.2007:</u> Information that AES Tiete will be responsible for data collection and archiving has been included in the last submitted PDD. CAR 31 is considered to be resolved. p
<u>Corrective Action Request 32:</u> Monitoring information in Annex 4 should be revised as there are some misleading information (as e.g. ..ex-ante monitoring..., ..the project site and the head office..., ...the staff responsible...)	B.7.2.4.	The text in Annex 4 was revised.	<u>DOE answer 15.12.2007:</u> The text in Annex 4 has been revised in the last submitted PDD. CAR 32 is considered to be resolved. p
<u>Corrective Action Request 33:</u> Project participants are requested to inform in the PDD that AES Tiete is not project participant.	B.8.4.	It was informed in the PDD under B.8 that AES Tiete is not a project participant.	<u>DOE answer 15.12.2007:</u> B.8. of the last submitted PDD informs that AES Tiete is not a project participant of the project activity. CAR 33 is considered to be resolved. p
<u>Corrective Action Request 34:</u> PPs are requested to indicate the phrase "The crediting period will start on October 01, 2009, or on the date of registration of the CDM project activity, whichever is later" in C.2.2.1.	C.2.1.	The starting date of the first crediting period was changed from October 01, 2009 to January 01, 2010 to better reflect the fact that all six turbines should be operational at this time. The phrase "The crediting period will start on January 01, 2010, or on the date of registration of the CDM project activity, whichever is later" was added in C.2.2.1.	<u>DOE answer 15.12.2007:</u> The start of the crediting period has been modified to January 01, 2010. Phrase has been included. CAR 34 is considered to be resolved. p
<u>Corrective Action Request 35:</u> The PDD should mention that no trans-boundary environmental impacts occur due to the project activity.	D.1.4.	It was mentioned under D.1.	<u>DOE answer 15.12.2007:</u> The last submitted PDD mentions that no trans-boundary environmental impacts will occur from the project activity. CAR 35 is considered to be resolved. p

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<u>Corrective Action Request 36:</u> PPs are requested to submit the protocols issued by the environmental authority to the validation team evidencing that the environmental licenses are transferred to AES Rio. .	D.2.2.	A protocol sent to the environmental authority requesting the change of the environmental licenses to AES Rio was sent to the local TUV validator. The ELs submitted by FEEMA to AES Rio relative to Posse, Monte Alegre and Sao Sebastiao were sent to the local TUV validator. .	<u>DOE answer 15.12.2007:</u> It is not retraceable to the validation team how the submitted document "Processo FEEMA AES Rio" refers to the installation licences which were presented during the on-site visit. The process numbers are different and there is no hint that the communication belongs to the hydroplants Posse, Monte Alegre and Sao Sebastiao. Project participants are requested to submit clear evidences that the ELs are transferred to AES Rio. <u>DOE answer 15.02.2007:</u> The validation team has received the ELs submitted by FEEMA to AES Rio. p CAR 36 is considered to be resolved. p
<u>Corrective Action Request 37:</u> It is not clear according to the information provided in the PDD when and how (postal, Email etc.) the invitations to stakeholders were sent. This information should be provided in the PDD.	E.1.1.	This information was added to the PDD section E.1. The exact date when the invitations were sent to the stakeholders was included in Section E of the PDD.	<u>DOE answer 15.12.2007:</u> Project participants are requested to provide the exact date when invitations to stakeholders were sent. <u>DOE answer 15.02.2008:</u> The last submitted PDD clearly informs that invitations to stakeholders were sent on September 12th, 2007 CAR 37 is considered to be resolved. p
<u>Corrective Action Request 38:</u> A bibliography with all references used in the PDD should be mentioned at the end of the PDD.	F.1.11.	A bibliography was included as Annex 5.	<u>DOE answer 15.12.2007:</u> A bibliography has been included as Annex 5 in the last submitted PDD. CAR 38 is considered to be resolved. p

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<u>Corrective Action Request 39 (15.12.2007):</u> The PDD should clearly justify why the three hydro-plants are considered as run-of river hydroplants, and not as new hydro-electric power plants with reservoir. Finally, the PDD indicates for each of the hydro-plant a reservoir.		A clear justification was included in Section A.2 of the PDD and is based on the operational characteristics of the three small hydro plants.	<u>DOE answer 15.02.2008:</u> Answer is given in the last submitted PDD and is retraceable to the validation team. CAR 39 is considered to be resolved. p
<u>Corrective Action Request 40 (15.12.2007):</u> Project participants should include alternatives like “electricity generation through other renewable energies than hydro-power” and “electricity generation through fossil fuels” in B.4. and afterwards explain why those alternatives are not possible baseline scenarios.		A discussion on both alternatives was included in Section B.4.	<u>DOE answer 15.02.2008:</u> A discussion on both alternatives is provided in the last submitted PDD. It is retraceable to the validation team. CAR 40 is considered to be resolved. p
<u>Corrective Action Request 41 (15.12.2007):</u> It is not clear to the validation team why as project’s starting date is indicated 01/10/2006. According to the EB guidelines, project start is determined as the starting date of construction or the date of any real action that has taken place. Project’s starting date should be revised and be evidenced.		The project starting date was revised to 01/08/2007 to reflect the engineering design phase of the project as indicated by the timetable. An evidence for the starting date of the engineering design phase was submitted. It includes the private contract between AES Rio PCH and MEK Engenharia to consolidate the basic technical data to report to ANEEL in July 3rd, 2007. Starting date was revised for 03/07/2007.	<u>DOE answer 15.02.2008:</u> Please submit an evidence for the starting date of the engineering design phase. <u>DOE answer 21.02.2008:</u> The project’s starting date has been evidenced by the private contract between AES Rio PCH and MEK Engenharia, signed on July 03, 2007. CAR 41 is considered to be resolved. p

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<u>Corrective Action Request 42 (15.12.2007):</u> Project participants are requested to inform in the PDD how internal electricity consumption is being considered. It should be guaranteed that only the net electricity supplied to the grid is considered for the emission reductions (CER) calculation. If necessary, project participants should include the parameter "Electricity for internal consumption" in B.7.1. of the PDD as parameter to be monitored. If however, the meter measures EGy as net electricity supplied to the grid, then the description of the parameter EGy has to clearly indicate that.		The description for parameter EGy in Section B.7.1 was modified to clearly indicate that the meter measures EGy as net electricity supplied to the grid.	<u>DOE answer 15.02.2008:</u> The description of measurement methods (in the last submitted PDD) clearly mentions that the meter measures the net electricity supplied to the grid. CAR 42 is considered to be resolved. p
<u>Corrective Action Request 43 (15.02.2008):</u> The PDD has not been updated with the last modifications. Please change version and date of the PDD and provide a short revision history in the beginning of the PDD (A.1.).		A short revision history is provided in Section A.1.	<u>DOE answer 21.02.2008:</u> A revision history has been provided in Section A.1. of the PDD. CAR 43 is considered to be resolved. p
Clarification Requests			

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<u>Clarification Request 1:</u> It is not clear to the validation team yet how CDM had been considered before the decision was taken to invest into the project activity. Project participants should explain and provide evidence.	B.5.1.	CDM benefits for Piabanha small hydros have been included in the economic model of the project since the beginning of negotiations for acquisition. Evidence was provided by means of CER revenues within the Cash-flow (IRR) calculation sheet "Piabanha Model_MGM_17out07". Evidence was provided by means of an Officer's meeting memo formalizing the decision to acquire the assets. The purchase contracts (i.e. EPC contracts) of the main equipment are still under negotiation with potential suppliers. EPC contracts will be finalized by April 2008 and therefore, the project timetable is delayed. Project participants will be able to forward the EPC contracts to the validation team once these are finalized. An English version of the document "Extrato de ata da 141a reuniao de diretoria" was submitted to the validator.	<u>DOE answer 15.12.2007:</u> Project participants are requested to submit the purchase contracts of the main equipment (turbines, generators) to the validation team. <u>DOE answer 15.02.2008:</u> Please submit the evidence for CDM consideration "Extrato de ata da 141a reuniao de diretoria" in English language. It is only available in Portuguese language so far and will be submitted with other project documents to the EB. <u>DOE answer 21.02.2008:</u> The evidence for CDM consideration has been submitted in English language. CR 1 is considered to be resolved. p
<u>Clarification Request 2:</u> Project participants should inform the validation team why the CDM will alleviate the economic and financial hurdles and identified barriers. Information should be added in the PDD.	B.5.17.	The text on institutional barriers was revised including a more thorough description of why the CDM will alleviate the economic and financial hurdles and identified barriers.	<u>DOE answer 15.12.2007:</u> The registration of the proposed project activity will help AES Rio PCH Ltda. to improve its economic performance. Information has been provided in the last submitted PDD. CR 2 is considered to be resolved. p

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Clarification Request 3: -It is not clear to the validation team what bi-directionally mean. Information should be provided in the PDD. -Information given in the second paragraph of B.7 is confusing and should be revised.	B.7.1.1.	The definition of bidirectionally was provided in the PDD within Section B.7. Information included in B.7 was revised.	<u>DOE answer 15.12.2007:</u> Necessary information/corrections have been provided in the last submitted PDD. CR 3 is considered to be resolved. p
Clarification Request 4: The validation team should be informed how the load factor was calculated.	B.7.1.2.	A technical document for each small hydro plant describing the calculations for assured energy and load factor was forwarded to the TUV local validator.	<u>DOE answer 15.12.2007:</u> Load factors have been evidenced by GUASCOR Geratec Ltda. reports about firm energy. CR 4 is considered to be resolved. p
Clarification Request 5: Project participants should confirm that there is no electricity import due to the project activity.	B.7.1.3.	For normal operational conditions, there will be no energy electricity import due to the project activity. In case of an emergency situation, a small hydro plant may import electricity to run its auxiliary load. The metering system will allow for the monitoring team to register electricity imports if necessary.	<u>DOE answer 15.12.2007:</u> Answer may be accepted. CR 5 is considered to be resolved. p

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
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Annex 2: Information Reference List

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Reference No.	Document or Type of Information
8	Emissions factor calculation sheet, BR-Grid EF SSECO-2004 to 2006-20007.07.30.xls, excel sheet, submitted on October 08, 2007.
9	Cash-flow (IRR) calculation sheet, “Piabanha Model_MGM_25set07”, excel-file, submitted on October 08, 2007.
10	Change of the social contract “Alteracao do CS_AES Rio PCH”, pdf-file, submitted on October 08, 2007.
11	Environmental installation licences N° FE012058 (SHP Posse), N° FE012060 (SHP Monte Alegre), N° FE012059 (SHP Sao Sebastiao), pdf-files, submitted on October 08, 2007
12	EIA N° E-07/202.294/02 FEEMA (Sao Sebastiao), EIA N° E-07/202.295/02 (Monte Alegre), EIA (Posse) without specific number, pdf-files, submitted on October 08, 2007.
13	Letters of invitation to the stakeholders, postal protocol, paper-form, presented on October 08, 2007.
14	ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 6, May 19 th , 2006)
15	ACM0002 “Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources (Version 6, May 19 th , 2006).
16	IPCC: Revised 2006 Guidelines for National Greenhouse Gas Inventories
17	IPCC: 2000, Good Practice Guidance
18	UNFCCC, CDM: Tool for the demonstration and assessment of additionality. UNFCCC, Version 4, EB 36.
19	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info
20	GPS coordinates of the three hydro-plants, MEK engineers, pdf-files, submitted on December 12, 2007.
21	Time schedule about the project implementation, power-point file, submitted on November 07, 2007.
22	Declaration about the voluntary participation of the project participants in the CDM project activity “Piabanha River Hydroelectric Plants”, 19.10.2007, pdf-file, submitted on November 07, 2007.
23	GUASCOR Geratec Ltda. Report about firm energy PCH Monte Alegre, revision 1, pdf-file, submitted on November 07, 2007.

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Reference No.	Document or Type of Information
24	GUASCOR Geratec Ltda. Report about firm energy PCH Posse, revision 1, pdf-file, submitted on November 07, 2007.
25	GUASCOR Geratec Ltda. Report about firm energy PCH Sao Sebastiao, revision 1, pdf-file, submitted on November 07, 2007.
26	Emission reductions calculation sheet “ERs Piabanha PDD 11.102007”, excel-file, submitted on November 07, 2007.
27	Minutes of a meeting, “Extrato de ata da 141a reuniao de diretoria”, 29/01/2007, pdf-file, submitted on December 12, 2007
28	Environmental Licenses issued by FEEMA to AES Rio, Posse: N° FE013396, issued on 05/10/2007, valid until 05/10/2010, Monte Alegre: N° FE013398, issued on 05/10/2007, valid until 05/10/2010, Sao Sebastiao: N° FE013397, 05/10/2007, valid until 05/10/2010, pdf-files, submitted on January 07, 2008.
29	Regulatory framework for small hydro plants in Brazil, pdf-file, submitted on January 07, 2008.
30	IRR calculation sheet “Piabanha Model_MGM_17out07.v3”, excel-file, submitted on February 21, 2008.
31	Final Project Design Document “Piabanha River Hydroelectric Plants “, version 03, 21.02.2008.
32	Extract from the minutes of the 141th meeting of the board of directors of AEC Tiete S.A. (in English language), pdf-file, submitted on February 21, 2008.
33	Signed service contract between MEK Engenharia and AES Rio PCH, pdf-file, submitted on February 21, 2008.