




**Validation report form for post-registration changes for
CDM project activities
(Version 03.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	SHPs Albano Machado and Rio dos Índios CDM Project (JUN1115) UNFCCC Ref #: 6465
Process track	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	2
Completion date of the validation report	31/07/2020
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ¹ <input type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <input checked="" type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	6
Project participants	Rio do Lobo Energia Ltda; Casa de Pedra Energia S.A; Carbotrader Assessoria e Consultoria em Energia EIRELI
Host Party	Brazil
Applied methodologies and standardized baselines	AMS-I.D. ver. 17 - Grid connected renewable electricity generation
Mandatory sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

Conditional sectoral scopes, if applicable	N/A
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited (ESPL) (ref E- 0066)
Name, position and signature of the approver of the validation report	 Dr. Kaviraj Singh Managing Director

SECTION A. Executive summary

Brief summary of the project activity

The project activity consists in generating renewable energy through the construction of two small hydro power plants (SHP) with total installed capacity of 11.16 MW (3.06 MW of SHP Albano Machado and 8.1 MW of SHP Rio dos Índios).

The project activity reduces the GHG emissions through dispatching GHG-free electricity to the Brazilian National Interconnected System.

The SHP Albano Machado is located in Lajeado do Lobo river, between Trindade do Sul and Nonoai cities, Rio Grande do Sul State, Brazil.

SHP Rio dos Índios is located in Rio dos Índios river, in Nonoai city, Rio Grande do Sul State, Brazil

The operation start date of the Albano Machado is on 11/02/2011^{14/} whereas the operation start date of SHP Rio dos Índios was on 04/05/2013^{14/}

Scope of verification

Carbotrader Assessoria e Consultoria em Energia EIRELI has contracted Earthood Services Private Limited to conduct the verification and certification of emission reductions reported for the CDM project activity “SHPs Albano Machado and Rio dos Índios CDM Project (JUN1115)” for the period from 02/07/2012 to 01/07/2019 (including both days). Moreover, the DOE will be conducting the validation of this post registration change.

The verification is the periodic independent review and ex post determination of the monitored reductions in GHG emissions that have occurred due to the registered CDM project activity during the defined monitoring period.

The validation of the Post registration changes is the independent review of the deviations from the project monitoring plan that have occurred due to the registered CDM project activity during the defined monitoring period.

The scope of the validation is to establish/verify that:

- the changes proposed for the project activity (change of project design) are in accordance with applied version of the CDM Project Standard for PA, CDM Validation and Verification Standard for PA, applied methodology and tools.

Validation process

The validation of this Post Registration Change is part of the verification process of this Project Activity. For the details on this process, please refer to the Verification Report to which this report is attached. This Post registration change will be requested in the issuance track, as it does not involve prior approval by the board.

Conclusion

Earthood Services Private Limited has performed the validation of the Change of project information (design changes) of the CDM PA “SHPs Albano Machado and Rio dos Índios CDM Project (JUN1115)”.

The validation team has confirmed that this deviation request complies with all eligibility criteria for the Post registration Changes in the registered CDM PA and that the proposed change in the project design aims uniquely inform the actual data and current situation of the project activity.

The validation team concluded that the proposed deviation complies with all relevant CDM procedures/standards/guidance.

SECTION B. Validation team, technical reviewer and approver**B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	OR	Sebben	Marcelo	Verifit	Y	Y	Y	Y
2.	Local Expert	OR	Sebben	Marcelo	Verifit	Y	Y	Y	Y
3.	Methodological Expert	OR	Sebben	Marcelo	Verifit	Y	Y	Y	Y
4.	Technical Expert	OR	Sebben	Marcelo	Verifit	Y	Y	Y	Y

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Garg	Shreya	Central Office
2.	Technical Expert	IR	Garg	Shreya	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Means of validation**C.1. Desk/document review**

A desk review was conducted by the validation team that included:

- a review of the data and information presented to verify its completeness;
- a review of installed equipment of all SHPs;
- A review of all applicable Standards, Guidelines and Procedures related to CDM PA.

A complete list of documents/evidences reviewed is included as Appendix 3.

C.2. On-site inspection

This process is part of the verification process of this PA. For details, please refer to the section D.2 of the Verification Report to which this report is attached.

C.3. Interviews

This process is part of the verification process of this PA. For details, please refer to the section D.3 of the Verification Report to which this report is attached.

C.4. Sampling approach

Not applicable as no sampling has been used during the validation

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form			
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents			
Corrections			
Changes to the start date of the crediting period			
Inclusion of a monitoring plan			
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents			
Changes to the project design		1	
Changes specific to afforestation and reforestation project activities			
Others (please specify)			
Total	-	1	-

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The revised PDD has applied the latest available CDM-PDD-Form version 11.0. All information were correctly transferred from registered PDD version 4 to this revised new version ^{/06/} . Information updated due to the proposed design change. Moreover, some minor editorial corrections have been done and information regarding the PA approval and authorization have been included. The revised PDD was completed in accordance with instructions for completing the PDD form version 11.0.
Findings	N/A
Conclusion	A valid version of the PDD template (CDM-PDD-FORM – version 11.0) available at the UNFCCC website has been used. It has been filled out in accordance with the “Instructions for filling out the PDD form”.

D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Not applied
Findings	-
Conclusion	-

D.3. Corrections

Means of validation	Not applied
Findings	-
Conclusion	-

D.4. Changes to the start date of the crediting period

Means of validation	Not applied
Findings	-
Conclusion	-

D.5. Inclusion of a monitoring plan

Means of validation	Not applied
Findings	-
Conclusion	-

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Not applied
Findings	-
Conclusion	-

D.7. Changes to the project design

Means of validation	<p>During the verification period, it was observed that some information related to the technical characteristics of the turbines and generators of the SHPs were not exactly in accordance with data actually observed during on-site inspection^{/11/}. This PRC proposes correcting the following information:</p> <p><u>SHP Albano Machado</u> This PRC proposes correcting the following information:</p> <table><tr><th>Change #</th><th>Characteristic</th><th>Old value</th><th>New value</th></tr><tr><td>1</td><td>Turbine flow rate (m³/s)</td><td>3.57</td><td>1.86</td></tr></table> <p><u>SHP Rio dos Índios</u></p> <table><tr><th>Change #</th><th>Characteristic</th><th>Old value</th><th>New value</th></tr><tr><td>2</td><td>Turbine nominal power per unit (kW)</td><td>4.160</td><td>4.125</td></tr><tr><td>3</td><td>Turbine flow rate per unit (m³/s)</td><td>1.89</td><td>1.96</td></tr><tr><td>4</td><td>Turbine synchronous Speed (rpm)</td><td>1,200</td><td>720</td></tr><tr><td>5</td><td>Power factor of generator (cos φ)</td><td>0.89</td><td>0.9</td></tr><tr><td>6</td><td>Generator capacity per unit (MW)</td><td>4.005</td><td>4.050</td></tr><tr><td>7</td><td>Power Density (w/m²)</td><td>31.71</td><td>32.07</td></tr></table> <p>Change #1: The change in the turbine flow rate of SHP Albano Machado was carried out as the information provided in the original PDD referred to the total flow of SHP and not flow of each turbine. The information was now corrected to the information per turbine, as per equipment plate. This is treated as change of project design, although not influencing the ERs, scale, and application of methodology nor additionality of the project activity. The assessment will be carried out together with other proposed changes.</p> <p>Changes # 2 to 4: The changes in the turbine characteristics of SHP Rio dos Índios (power, flow and speed) occurred as the information provided in the original PDD was obtained in the design documents, prior the equipment acquisition. The final values of turbine characteristics were only fixed after the turbine construction, commissioning and tests, which occurred after the validation phase. These changes were qualified as change of project design as per paragraph 240 of the PS v.02.0 (General change of project design). The changes in the turbines information is marginal (difference of 0.8% in power per unit) and it is allowed by ANEEL^{/16/} (National Agency of Electric Sector). They do NOT influence in the installed capacity of PA nor influence in the estimated ER calculations.</p> <p>Change # 5 to 7: These changes were qualified as change of project design as per paragraph 241)a) of the PS v.02.0 as the amendment in the generator's data result in the increase in the installed capacity. The reason for this change is only the rounding up of the power factor (cos φ) value which was rounded from 0.89 in the design documents (used during validation phase) to 0.9 in the equipment plate. As a result of the change in the power factor of the generators, the total installed capacity of the SHP Rio dos Índios changed from 8.01 MW to 8.1 MW. Consequently, the informed installed capacity of the Project activity has increased from 11.07 MW to 11.16 MW. Moreover, the Power density of SHP Rio dos Índios changed from 31.71 W/m² to 32.07 W/m² in the revised PDD. Therefore, the change is qualified as change of project design.</p>	Change #	Characteristic	Old value	New value	1	Turbine flow rate (m³/s)	3.57	1.86	Change #	Characteristic	Old value	New value	2	Turbine nominal power per unit (kW)	4.160	4.125	3	Turbine flow rate per unit (m³/s)	1.89	1.96	4	Turbine synchronous Speed (rpm)	1,200	720	5	Power factor of generator (cos φ)	0.89	0.9	6	Generator capacity per unit (MW)	4.005	4.050	7	Power Density (w/m²)	31.71	32.07
	Change #	Characteristic	Old value	New value																																	
	1	Turbine flow rate (m³/s)	3.57	1.86																																	
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	3	Turbine flow rate per unit (m³/s)	1.89	1.96																																	
	4	Turbine synchronous Speed (rpm)	1,200	720																																	
	5	Power factor of generator (cos φ)	0.89	0.9																																	
	6	Generator capacity per unit (MW)	4.005	4.050																																	
	7	Power Density (w/m²)	31.71	32.07																																	

	<p>The consequences for the PA are the following applicable for all changes (from 1 to 7):</p> <ul style="list-style-type: none"> - The value of turbine flow, turbine nominal power and turbine speed (changes 1 to 4) are only informative as they are not used in the calculation of estimated emission reductions. Therefore, these changes does not influence the installed capacity of the Project activity and therefore, does not influence the scale, applicability of methodology neither additionality of the PA. The changes of SHP Albano Machado (#1) was due to consideration of total flow instead of flow per turbine. The changes 2 to 4 were not known at the moment of the validation as the information on actual equipment were not available at this time. Therefore the validation team classified all changes as change of project design (PS para 240) - The value of total installed capacity of generators (change # 6) is only informative as it is not used in the calculation of the estimated the emission reductions. The ERs were estimated in the original PDD based on the parameter Assured Energy² (MWaverage) which is the average generation estimated for each SHP. This parameter is based on long term hydrological studies^{/09/} available at the time of validation phase. The values remain unaltered from the original PDD in 4.336 MWaverage for SHP Rio dos Índios due to this amendment. It's worth mentioning that the apparent power of the generators of SHP Rio dos Índios also remain unaltered (4,500 KVA per generator). However, as the power factor ($\cos \varphi$) has been rounded up in the equipment plates from 0.89 to 0.90 (change #5), it resulted in a slightly increase of the power capacity from 4.005 to 4.050 MW and consequently, the installed capacity also increased. The capacity is calculated by multiplying the apparent power by the $\cos \varphi$ (4,500 KVA x 0.9 = 4.050 MW), as it is not given in the nameplate of equipment. It demonstrates that the generator itself did not change from the original project to the actual installed one. The power density of SHP Rio dos Índios slightly increases due to the increase of installed power capacity (change #7). However, it remains above 10 w/m², thus not affecting the calculation of PE from reservoir. The PE remain equal to zero. - It is important to state that there is no change in the generators during the crediting period. It was observed that in the validation report^{/15/}, the equipment was not yet installed during the site visit of the validation process for the SHP Rio dos Índios and therefore, this information was not known at that time. The equipment was only described in the project description provided by the Engineering Company (Rischbieter Engenharia e Serviço). <p>The reason for all these changes is to apply consistent information that match with equipment plates for the calculation of installed capacity of the PA. These changes do not influence the estimated ER calculations.</p>
Findings	<p>CAR 1</p> <p>The technical information from the SHPs described in the PDD were not in accordance with actual information observed during the site visit.</p>
Conclusion	<p>The changes above (1 to 4) are categorized as "Project design change", as per PS for PA para 240.</p> <p>The changes above (5 to 7) are categorized as Project design, increase of capacity of SHP Rio dos Índios as per PS for PA paragraph 241)a)ii as all influence or are influenced by the increase in the capacity.</p> <p>The validation team confirms that the project activity remains within the small scale threshold as per PS for PA paragraph 241)a)ii.</p> <p>Moreover, the validation team confirms the following (in accordance with PS for PA para 242:</p> <ul style="list-style-type: none"> a) The proposed changes do not influence the applicability and application of the methodology AMS-I.D. ver. 17 as it remains under the small scale threshold

² Assured energy^{/17/} is the concept used by ANEEL (National Agency of Electricity in Brazil) which corresponds to the average energy generated by a power plant based on long term hydrological regime. This value is approved by ANEEL and correspond to the official energy to be produced (estimated) by a power plant. The unit of this parameter is MWaverage or MWh/hour.

	<p>b) The change does not influence the monitoring plan applied. The electricity will be directly monitored and the fact of the turbines and generator characteristics slightly changed, does not change this condition. The monitoring plan also remains in compliance with applied methodology</p> <p>c) The level of accuracy and completeness in the monitoring is not affected by these changes as they do not affect any aspect of the monitoring plan. The monitoring plan remains unaltered</p> <p>d) The proposed changes, specifically the slightly increase of the installed capacity does not adversely affect the additionality of the project as follows: the additionality was carried out through investment analysis: the input parameters were CAPEX, OPEX, REVENUES from estimated electricity generated and TAXES:</p> <ul style="list-style-type: none"> a. CAPEX: no effective change in the CAPEX is expected as it could be observed on site that the generators of SHP Rio dos Indios did not change from the validation phase. The same apparent power was observed (4,500 kVA). What happened was only the round up of the power factor by manufacturer in the nameplate of equipment, which resulted in the increase of effective installed capacity as explained above. Moreover, if any alteration was to be done in CAPEX value, by increasing the rated capacity, it would be to increase the value of CAPEX proportionally, hence keeping the CAPEX is in any case conservative; The slightly change in the turbines characteristics, especially in the in the turbine's capacity of SHP Rio dos Indios (0.8%) also is not expected to impact the CAPEX. b. OPEX: likewise, no influence in the OPEX is expected as the equipment actually installed remains practically the same and therefore no influence in the financial analysis would be observed; c. REVENUES from electricity generation: The only change that could impact this parameter is the change in the installed capacity (change #6). Nevertheless, this parameter was calculated based on the Assured energy (MWaverage) and energy price (which also remains unaltered) and NOT based on the installed capacity of the SHP. The assured energy is based on long term hydrological studies^{09/} and it is not expected to change due to this small adjustment (round up) in the power factor of the generator. d. TAXES: no influence in the taxes is expected due to these amendment. <p>Therefore, no adverse impact in the additionality is expected due to these proposed design changes. The investment analysis can be seen in the excel spreadsheet approved during registration of the PA^{15/} available in the project's page at UNFCCC website. Therefore the proposed changes would not affect the applicability of paragraph 243 of PS for PA</p> <p>e) The increase of the installed capacity for the whole PA (considering both SHPs) was from 11.07MW to 11.16MW. Therefore, the PA remains as small scale. No change in the scale was observed.</p> <p>Moreover, this correction is being requested under issuance track as per PS Appendix, paragraph 1)d) as follows:</p> <p>The changes to the project design do not adversely impact any of the following:</p> <ul style="list-style-type: none"> a) The applicability of applied methodology, additionality and scale of the project activity as it is already assessed above.
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D.8. Changes specific to afforestation and reforestation project activities

Means of validation	Not applicable
Findings	-
Conclusion	-

SECTION E. Internal quality control

The assessment of Post Registration Changes that is prepared by validation team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures

established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope to which the project activity is related. All members of technical review team are independent of the validation/verification team.

During the technical review process, additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification/validation team. The decision taken by the technical reviewer is final and is authorized on behalf of ESPL

SECTION F. Validation opinion

The following changes were requested during this verification process.

- Change of project design (including change of technical information of the PA and increase of installed capacity)³:

The change of project design is being requested in accordance with PS para 240 (general changes of the project design) and para 241a) increase of capacity.

Moreover these changes of project design are being requested under issuance track as per PS Appendix, paragraph 1) d) as follows:

- d) " The changes to the project design do not adversely impact any of the following:
 - a. The applicability of applied methodology, additionality and scale of the project activity

As per VVS section 8.3.1 and 8.3.5, the validation team concludes the following:

- The changes above reflect the actual information observed during the site visit and are considered in compliance with CDM PS for PA.
- The changes above are considered accurate by the validation team as observed during on-site inspection
- There is no impact in the monitoring plan, level of accuracy of monitoring activities, applied methodology and other applied methodological documents due to this proposed change.
- The Proposed changes does not adversely affect the conclusions of the validation report of the registered PDD regarding the additionality, scale, applicability and application of methodology and compliance with monitoring plan. Regarding the additionality, the change does not impact the investment analysis as this parameter was not used in the additionality assessment as explained above.
- The revised PDD complies with all requirements of applied methodologies and all information was duly transferred from original PDD to the revised version.
- The validation team opinion is that the proposed changes comply with relevant requirements of CDM PS for PA.
- Moreover, the description of the changes are duly reflected in the PDD. These changes were not known prior the construction of the SHP.
- The changes will not affect the conclusions of the validation report of the registered PDD.

Apart from the changes mentioned above, the contact information described in appendix 1 was updated to comply with new information updated on 18/02/2020 as per project's page at UNFCCC website.

³ It is important to point out that even though the increase of capacity occurred more than two years ago (since the construction of the SHP), this PRC is being proposed before 31/08/2020 in accordance with PCP for PA paragraph 131.

Appendix 1. Abbreviations

Abbreviations	Full texts
ABNT	Brazilian Association of Technical Regulation
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CCEE	Electric Energy Commercialization Chamber (Government Agency)
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CME	Coordinating/Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
EPE	Energy Research Company of the Ministry of Mines and Energy – Brazil
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GW	Giga Watt
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kW	kilo Watt
kWh	kilo Watt hour
LoA	Letter of Approval/Authorization
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
N ₂ O	Nitrous Oxide
OM	Operating Margin
ONS	National System Operator (from Portuguese – Operador Nacional do Sistema)
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PP	Project Participant
PS	Project Standard
tCO ₂ e	Tonnes of Carbon di oxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VT	Verification Team
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Marcelo Sebben		
Country	Brazil		
Education	M.Sc. (Sustainable Energy System) B. Eng. (Chemical Engineering)		
Experience	+12.5 Years		
Field	Chemical process industry, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, ACM0006, AM0065, AMS ID, AMS-I.E, AMS-I.C, AM0026, AMS-I.A, AMS-I.F, AMS-III.H, AMS-III.I. GS: Ecologically Sound Fuel Switch to Biomass with Reduced Energy Requirement, GS: Technologies and Practices to Displace Decentralized Thermal Energy Consumption)		
Local expert	Brazil, Chile, Honduras, Colombia		
Financial Expert	Yes		
Technical Reviewer	No		
TA Expert	Yes (TA 1.1, 1.2, 4.1, 5.1, 9.1, 13.1)		
Reviewed by	Shreya Garg	Date	05/03/2020
Approved by	Anshika Gupta	Date	05/03/2020

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for PA	version 02.0	Others
2.	UNFCCC	Standard: CDM PCP for PA	version 02.0	Others
3.	UNFCCC	Standard: CDM VVS for PA	version 02.0	Others
4.	UNFCCC	Form: CDM-PDD-FORM	version 11.0	Others
5.	PP	Registered PDD	version 4 – 17/01/2012	Others
6.	PP	Revised PDD	version 5 – 29/04/2020 version 6 – 29/07/2020	Others
7.	UNFCCC	Methodology: AMS-I.D.: Grid connected renewable electricity generation -	Version 17	Others
8.	UNFCCC	- TOOL 07 Tool to calculate the emission factor for an electricity system	version 2.2.1	
9.	PP	- Assured energy for Both SHPs – Registered PDD version 04 - RDI-CA-001-R0 for the Assured energy of the SHP Rio dos Índios “Carta - Solicitação de Energia Assegurada.pdf”, - Ordinance # 120 - Aneel Approval assured energy, released after the starting date of the PA, evidencing that assured energy did not increase due to the proposed change.	version 4 – 17/01/2012 24/04/2009 13/12/2013	Others
10.		<u>Manuals:</u> - Operation and Maintenance Manual of Turbine and generators from both SHPs		PP
11.	PP	Pictures of SHPs generators and turbines		
12.	-	DNA of Brazil	http://www.mctic.gov.br/portal	Other
13.	ANEEL	ANEEL – National Agency of Electric Energy	www.aneel.gov.br	
14.	PP	<u>Operation start date</u> - Dispatch # 516 issued by ANEEL, from 10/02/2011 authorizing the start of operation from 11/02/2011 for SHP Albano Machado. - Dispatch # 1.359 issued by ANEEL, from 03/05/2013 authorizing the start of operation from 04/05/2013 for SHP Rio dos Índios.		
15.	RINA	Validation report # 2010-BQ-04-MD “SHPs Albano Machado and	<u>Revision 1.3 – 17/01/2012</u>	

		Rio dos Índios CDM Project (JUN1115)", Investment Analysis Rio dos Índios spreadsheet registered "Appencix 3 - Analise_RDI_carbono_infl_v2_2"	https://cdm.unfccc.int/Projects/DB/RINA1340214069.45/view	
16.	ANEEL	ANEEL Resolution no. 407/2000 – states that the installed capacity of a power plant can vary maximum +- 5% from the design capacity without affecting the legal documents already issued. No justification is needed when within this range.	19/10/2000	
17.	ANEEL	Definition of Assured Energy – Cadernos temáticos ANEEL – issued on 04/2005	https://www.aneel.gov.br/documents/656835/16505063/2005_CadernosTematicosANEEL3.pdf/c09636a7-c356-c427-ac3b-3eea464ca906	
18.	IPCC	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
19.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Other

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	xx	Section no.	Date: DD/MM/YYYY
Description of CL			
<i>Not applied</i>			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Table 2. CARs from this validation

CAR ID	01	Section no.	D.3	Date : 23/03/2020
Description of CAR				
<i>The technical information from the SHPs described in the PDD were not in accordance with actual information observed during the site visit.</i>				
Project participant response				Date : 09/04/2020
<p><i>The installed capacity of SHP Rio dos Índios has a very small difference of planned to duly implemented due to technical and also economical characteristics when acquiring the generators equipments (2 on total). From 8.01 to 8.10 MW (1.12%). But for local supervisor Brazilian entities this difference, below 5%, is supported through the ANEEL resolution number 407, issued on 19th October 2000, if the present/real installed capacity isn't greater than +/- 5 % of the authorized (granted) installed capacity, a revision of the authorized installed capacity shouldn't be requested.</i></p> <p><i>For CDM PS changes as specified above need to go for Post Registration Changes for further consideration and approval by the Board.</i></p>				
Documentation provided by project participant				
<i>MR_JUN1115_rev2</i>				
DOE assessment				Date: 15/04/2020
<p>It is agreed that the changes were observed in the registered PDD when compared to the actual situation observed during site visit. Moreover, this small difference is within the margin accepted by ANEEL for its approval. However, According to the PS para 232 (as stated below) a revised PDD is to be provided to the verification team and this document have not been provided. Thus the CAR remains open.</p> <p><i>"If the project participants make any corrections to the project information or parameters fixed at registration of the CDM project activity as described in the registered PDD, the project participants shall document these corrections in a revised PDD"</i></p>				
CAR remains open				
Project participant response				Date : 22/04/2020
<i>The PDD was developed accordingly.</i>				
Documentation provided by project participant				
<i>PDD version 5</i>				
DOE assessment				Date: 23/04/2020
<p>The revised PDD has been provided to the verification team.</p> <p>It is filled in accordance with instructions for completing the PDD.</p> <p>Information from turbines of both SHPs and installed capacity of SHP Rio dos Índios were corrected accordingly in the PDD and PRCs (correction and change of project design) were proposed.</p> <p>For details in the changes proposed, refer to the Assessment on Post registration changes report.</p>				
CAR is closed				

Table 3. FARs from this validation

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
<i>Not applied</i>			
Project participant response			Date: DD/MM/YYYY

Documentation provided by project participant	
DOE assessment	Date: DD/MM/YYYY

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		