



SALTO PILÃO HYDROPOWER PLANT PROJECT ACTIVITY

Document Prepared by Earthood Services Private Limited

Project Title	Salto Pilão Hydropower Plant Project Activity
Version	1
Report ID	VCS.VAL.21.206

Report Title	Verification Report – Salto Pilão Hydropower Plant Project Activity
Client	Consórcio Empresarial Salto Pilão
Pages	23
Date of Issue	24-February-2022
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Summary:

Summary of the project activity

The project activity consists in a hydropower plant with installed capacity of 191.88 MW, which generates electricity avoiding power generation from fossil fuel sources. The plant is connected to the Brazilian National Interconnected System (SIN).

The project applies the CDM approved methodology ACM0002 – Grid-connected electricity generation from renewable sources – version 11.0.

Scope of verification

Consórcio Empresarial Salto Pilão has contracted ESPL to conduct the verification of the project "Salto Pilão Hydropower Plant Project Activity" for the period from 01/01/2018 to 18/01/2020 (both days included), regarding the requirements of VCS Standard version 4.2.

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

- the project activity has been implemented and operated as per the registered PD and that all physical features (technology and monitoring equipment) of the project are in place;
- the monitoring report and other supporting documents provided are complete in accordance with the latest applicable version of the completeness checklist for requests for issuance of VCUs, verifiable, and in accordance with applicable requirements of the Verified Carbon Standard Version 4.2;
- the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and approved methodology;
- the data are recorded and stored as per the monitoring methodology.

Conclusion

ESPL has performed the verification for the period from 01/01/2018 to 18/01/2020 (both days included) of the project "Salto Pilão Hydropower Plant Project Activity", with VCS Project ID 513.

During the present VCS verification, 04 CLs and 03 CARs were raised and successfully closed.

In addition, as outcomes of this verification, the VT has confirmed:

- the implementation of the project, as per description of the VCS-PD;
- the monitoring plan of the VCS-PD and the application of the monitoring methodology (ACM0002 – version 11.0);
- that the monitoring system is in place and the emission reductions are calculated without material misstatements;
- the verified emission reductions amount of **518,810** tCO₂e in the above-mentioned monitoring period.

CONTENTS

1	Introduction	5
1.1	Objective	5
1.2	Scope and Criteria.....	5
1.3	Level of Assurance	5
1.4	Summary Description of the Project.....	5
2	Verification Process.....	7
2.1	Method and Criteria	7
2.2	Document Review	7
2.3	Interviews	8
2.4	Site Inspections.....	8
2.5	Resolution of Findings	9
2.5.1	Forward Action Requests	9
2.6	Eligibility for Validation Activities	9
3	Validation Findings	9
3.1	Participation under Other GHG Programs	9
3.2	Methodology Deviations.....	9
3.3	Project Description Deviations	10
3.4	Grouped Project	10
4	Verification Findings	10
4.1	Project Implementation Status.....	10
4.2	Safeguards	11
4.2.1	No Net Harm	11
4.2.2	Local Stakeholder Consultation	11
4.3	AFOLU-Specific Safeguards	11
4.4	Accuracy of GHG Emission Reduction and Removal Calculations.....	11
4.5	Quality of Evidence to Determine GHG Emission Reductions and Removals	14
4.6	Non-Permanence Risk Analysis	14
5	Verification Conclusion	14
	APPENDIX I: References	16
	APPENDIX II: Abbreviations	18
	APPENDIX III: Findings	19
	APPENDIX IV: Competence of team members and technical reviewers	23

1 INTRODUCTION

1.1 Objective

Consórcio Empresarial Salto Pilão has contracted the ESPL to conduct the verification of the period from 01/01/2018 to 18/01/2020 (both days included) of the project "Salto Pilão Hydropower Plant Project Activity", regarding the requirements of VCS Standard version 4.2.

1.2 Scope and Criteria

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

- the project activity has been implemented and operated as per the registered PD and that all physical features (technology, project equipment and monitoring and metering equipment) of the project are in place;
- the monitoring report and other supporting documents provided are complete in accordance with the latest applicable version of the completeness checklist for requests for issuance of VCUs, verifiable, and in accordance with applicable VCS Standard version 4.2;
- the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- the data are recorded and stored as per the monitoring methodology.

The verification of this monitoring period is based on the registered VCS-PD, MR and GHG emission reduction calculation spreadsheet and supporting documents.

1.3 Level of Assurance

The verification of this monitoring period has achieved a reasonable level of assurance.

1.4 Summary Description of the Project

The project activity consists in a hydropower plant with installed capacity of 191.88 MW, which generates electricity avoiding power generation from fossil fuel sources. The plant is connected to the Brazilian National Interconnected System (SIN).

The project is listed at VCS and can be accessed by the following link:

<https://registry.verra.org/app/projectDetail/VCS/513>

Some of the characteristics of the project activity are described below:

- Project Proponent: Consórcio Empresarial Salto Pilão (CESAP);

- Other Entity involved in the Project: Ecopart Assessoria em Negócios Empresariais Ltda.;
- Project Category: Large project (> 300,000 tCO₂e/y);
- Methodology: ACM0002: Grid-connected electricity generation from renewable sources – version 11.0;
- Start Date: 11/12/2009 – date when first generating unit started operation;
- Crediting Period: from 19/01/2010 to 18/01/2020 – 10 years – renewable;
- Project Location: at Itajaí-Açú River, between the cities of Lontras, Ibirama and Apiúna, Santa Catarina State, with geographic coordinates: 27°06 S and 49°28 W;
- Technical Data:

Installed Capacity		191.88 MW
Assured capacity		114.1 MW _{avg}
Reservoir area		0.15 km ²
Power density		1,279.2 W/m ²
Turbines	Turbine # 1	Serial # 19238
	Turbine # 2	Serial # 19239
	Manufacturer	Voith Hydro
	Type	Francis
	Quantity	02
	Nominal capacity (per unit)	97,650 kW
Generators	Generator # 1	Serial # SP06 002332 01
	Generator # 2	Serial # SP06 002332 02
	Manufacturer	Voith Hydro
	Model / Type	Synchronous / 1DH6647-3WF10-Z
	Quantity	02
	Nominal capacity (per unit)	106,600 kVA
	Power factor	0.9

- Sustainable development contribution: contributions regarding renewable energy generation, local development, employment and income generation, and reduction of greenhouse gases.

The SDG indicator applicable to the project activity is **7.2.1 – Renewable energy share in the total final energy consumption**, as the project increases the renewable energy share in the electric matrix.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process is conducted as per internal CDM Quality Manual and in accordance with criteria laid down by VCS. It includes the following steps:

- contract with PP for the scope and appointment of verification team and technical review team;
- completeness check of Monitoring Report;
- desk review of Monitoring Report and corresponding ER sheet by verification team and planning of onsite audit (including sampling approach to be applied);
- remote inspection by verification team;
- follow up activities e.g., interviews;
- reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report;
- independent technical review of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences);
- reporting and closure of TR comments/findings (CARs/CLs/FARs) and final approval for the decision made;
- issuance of final verification report to contracted PP (or authorized representatives).

2.2 Document Review

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

- a review of the data and information presented to verify its completeness;
- a review of the registered monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- an evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions;
- supporting documents.

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

2.3 Interviews

#	Interviewee		Date	Subject	Means	Team member
	Name	Affiliation				
1	Luís Ribeiro	CESAP / General manager	19/11/2021	Project management	Remote site visit / Direct questions and evidences presentation	Sergio Cruz
2	Pedro Oliveira	CESAP / Environmental Supervisor	19/11/2021	Licenses General aspects of project activity Virtual tour	Remote site visit / Direct questions and evidences presentation	Sergio Cruz
3	Humberto Marçal	CESAP / Operation Supervisor	19/11/2021	Extraction of raw data of electricity generation and consumption Virtual tour Operations and monitoring	Remote site visit / Direct questions	Sergio Cruz
4	Dalton Miguel	CESAP / Maintenance Supervisor	19/11/2021	Extraction of raw data of electricity generation and consumption Virtual tour	Remote site visit / Direct questions	Sergio Cruz
5	David Menuzzi	Ecopart / Consultant	19/11/2021	VCS aspects ER estimates ER calculations	Remote site visit / Direct questions	Sergio Cruz

2.4 Site Inspections

Duration of virtual audit: -				
#	Activity performed on-site	Site location	Date	Team member
-	-	-	-	-

A site visit was not performed for the verification, because of difficulties still faced by COVID-19.

In addition, there was a deadline for submission of the renewal of crediting period in 18/01/2022, which was done along with the present verification. Thus, a remote site visit was performed with interviews with operation and management representatives of the plant. Moreover, live images and photos of main equipment, metering equipment and delivery point were presented to the VT, besides all necessary supporting documents.

Raw data was collected direct from the supervisory system during the remote site visit and cross-check was done with data downloaded from the Chamber of Commerce of Electric Energy's website that is public and official, and which provides a 100% of monthly cross-check information.

So, a reasonable level of assurance was met achieving the materiality requirements for the specific project.

2.5 Resolution of Findings

The findings may be of following types: CAR – Corrective Action Request, CL – Clarification Request and FAR – Forward Action Request.

During the present verification, 04 CLs and 03 CARs were raised and successfully closed.

The list of findings and their resolution are presented at Appendix III of this report.

2.5.1 Forward Action Requests

No FAR was raised.

2.6 Eligibility for Validation Activities

ESPL holds the accreditation for validation of the sectoral scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity has no participation in any other GHG Program.

3.2 Methodology Deviations

The project activity complies with the applied methodology ACM0002 – Grid-connected electricity generation from renewable sources – version 11.0.

No deviations were observed.

3.3 Project Description Deviations

During the 4th verification of first crediting period, the installed capacity of the plant and assured energy were revised to 191.88 MW and 114.1 MW_{avg}, respectively. The changes were duly approved at the time by VCS and are the actual capacities of the plant.

The project has been implemented and operated as described in the revised registered VCS-PD.

3.4 Grouped Project

The project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity consists in hydropower plant Salto Pilão (UHESP), which generates electricity avoiding power generation from fossil fuel sources. The plant is connected to the Brazilian National Interconnected System (SIN). Thus, GHG emission reduction is achieved.

As per the remote site assessment, observations, interviews and collected evidences, it was possible to assess that, in general, the project activity has been implemented as described in the VCS-PD.

There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology.

In addition, the GHG emission reductions generated by the project for the present monitoring period have not become included in any emissions trading program or any other mechanism that includes GHG allowance trading. Moreover, the project has not received nor sought any other form of environmental credit, and neither has become eligible to do so since validation or previous verification. Finally, the project has not participated nor been rejected under any other GHG programs since validation or previous verification.

The main sustainable development contributions are those, besides the electricity generation, it contributes with local development, employment and income generation, and reduction of greenhouse gases.

4.2 Safeguards

4.2.1 No Net Harm

During the environmental licensing, which is a legal requirement in Brazil for the type of plants of the project activity, an environmental impact assessment was conducted. During construction phases, some impacts were identified, and monitoring programs were designed to mitigate them, which are developed during all lifetime of the project and are essential part of renewal of operation licenses.

4.2.2 Local Stakeholder Consultation

The stakeholder consultation was correctly performed at the original validation of the project activity, in accordance with VCS rules.

In addition, social programs are periodically developed and there are open channels available for stakeholder's interaction with representatives of projects.

No comments and/or complaints and/or suggestions were identified during this monitoring period.

4.3 AFOLU-Specific Safeguards

Not applicable, as it is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project activity applies the approved CDM methodology ACM0002 – Grid-connected electricity generation from renewable sources – version 11.0 is applied to the project activity. Thus:

- the baseline and project emissions are considered for the project activity, in accordance with the applied methodology;
- no leakage is considered for this kind of project, in accordance with the applied methodology;
- all methods and formulas used in the calculations of emission reductions have been followed in accordance with the applied methodology and monitoring plan of the validated at VCS-PD;
- all monitored data is traceable.

Fixed parameter – as per the registered VCS-PD, there are no parameter fixed ex-ante.

Monitored parameters:

- $EG_{facility,y}$ (Quantity of net electricity generation supplied by project/plant unit to the grid in year y): 808,231 MWh/y (2018); 817,693 MWh/y (2019); and 21,420 MWh/y (2020);
- CAP_{PJ} (Installed capacity of the hydropower plant after the implementation of the project activity): 191,880,000 W;
- AP_J (Area of the single or multiple reservoirs measured in the water surface, after the implementation of the project activity, when the reservoir is full): 150,000 m²;
- $EF_{grid,CM,y}$ (Combined factor of margin CO₂ emission for grid-connected power generation in year y): 0.3242 tCO₂/MWh (2018); 0.3051 tCO₂/MWh (2019); and 0.3396 tCO₂/MWh (2020);
- $EF_{grid,OM,y}$ (CO₂ Operating Margin emission factor of the grid, in a year y): 0.5114 tCO₂/MWh (2018); 0.5082 tCO₂/MWh (2019); and 0.5813 tCO₂/MWh (2020);
- $EF_{grid,BM,y}$ (Build Margin CO₂ emission factor of the grid connected power generation, in a year y): 0.1370 tCO₂/MWh (2018); 0.1020 tCO₂/MWh (2019); and 0.0979 tCO₂/MWh (2020).

It is important to note that calibration certificates^{14/} for the entire monitoring period were presented to the verification team. The calibration frequency in accordance with Brazilian regulations is 5 years. No delayed calibrations were observed.

The monthly aggregated values of monitored electricity generation and consumption of the entire period were crosschecked with public data from CCEE (Infomercado). The lower values among electricity meters and CCEE were used in the calculations.

The emission reduction spreadsheet is transparent, traceable and correct, with no manual transposition errors.

Baseline emissions (BE_y)

The baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y	Baseline emissions in year y ;
$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y ;
$EF_{grid,CM,y}$	Combined margin CO ₂ emission factor for grid connected power generation in year y , calculated using the latest version of the "Tool to calculate the emission factor for an electricity system".

So, **$BE_{2018} = 262,040 \text{ tCO}_2\text{e}$** ;

BE₂₀₁₉ = 249,495 tCO₂e; and

BE₂₀₂₀ = 7,275 tCO₂e.

Project emissions (PE_y)

As per ACM0002, project emissions are calculated the power density of the single or multiple reservoirs (PD) is higher than 4W/m² and lower than or equal to 10W/m²

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

- PD* Power density of the project activity;
- Cap_{PJ}* Installed capacity of the hydro power plant after the implementation of the project activity;
- Cap_{BL}* Installed capacity of the hydro power plant before the implementation of the project activity;
- A_{PJ}* Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full;
- A_{BL}* Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full.

For UHESP, the power density is 1,279.2 W/m². Thus, as the power density is higher than 10 W/m², project emissions of the project activity are zero. So, **PE_y = 0 tCO₂e.**

Leakage emissions (LE_y)

No leakage is considered for this kind of project. Thus, **LE_y = 0 tCO₂e.**

Emission Reductions (ER_y)

Therefore, according to the applied methodology, as *PE_y* and *LE_y* = 0 tCO₂e, *ER_y* = *BE_y*.

Thus, *ER_y* = *BE_y*. So, **ER₂₀₁₈ = 262,040 tCO₂e;**

ER₂₀₁₉ = 249,495 tCO₂e; and

ER₂₀₂₀ = 7,275 tCO₂e.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

- records were submitted by the project proponent as evidences to determine emission reduction;
- the records, data and information provided were found valid for the current verification period. The documents were verified during site visit and when possible, were checked directly from its source;
- interviews were performed during site visit with involved personnel and PP's representatives;
- the GHG emission reduction calculations were check step by step with PP's representatives;
- the quality of evidences was found of adequate level by the verification team to ensure an accurate quantification of the emission reductions.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

ESPL, contracted by Consórcio Empresarial Salto Pilão, has performed the verification of the period from 01/01/2018 to 18/01/2020 (both days included) of the project "Salto Pilão Hydropower Plant Project Activity", with VCS Project ID 513.

CESAP is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

ESPL commenced the verification based on the baseline and monitoring methodology ACM0002 –version 11.0 and the monitoring plan contained in the VCS-PD – version 7.1 and draft Monitoring Report.

ESPL's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

The verification team confirms, based on final revised MR, that:

- the project activity was found completely implemented as per the description given in the registered VCS-PD; and

- the actual operation conforms to the description in the registered VCS-PD.

In our opinion, the GHG emissions reductions reported for the project activity for the period from 01/01/2018 to 18/01/2020 (including both days) are correct in the final version of the Monitoring Report. The GHG emission reductions were calculated correctly based on the approved baseline and monitoring methodology ACM0002 –version 11.0 and the monitoring plan contained in the VCS-PD.

Therefore, ESPL can certify that the emission reductions from the VCS project “Salto Pilão Hydropower Plant Project Activity” as follows:

Verification period: From 01-January-2018 to 18-January-2020 (including both days).

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2018	262,040	0	0	262,040
2019	249,495	0	0	249,495
2020*	7,275	0	0	7,275
Total	518,810	0	0	518,810

* from 01/01/2020 until 18/01/2020



Approved by

Kaviraj Singh

Managing Director

Earthood Services Private Limited

Date: 24/02/2022

Place: Gurgaon, Haryana

APPENDIX I: REFERENCES

#	Title	References
1	VCS Standard	version 4.2
2	Project design document	version 7.1 – 22/05/2019
3	Monitoring Report – draft / revised	version 4.0 – 16/11/2021 version 3.1 – 02/12/2021 version 3.2 – 10/01/2022
4	Monitoring Report – final	version 3.4 – 14/02/2022
5	ER Spreadsheet – draft / revised	version 1 version 3.1 version 3.2
6	ER Spreadsheet – final	version 3.3
7	<u>Methodology</u> ACM0002: Grid-connected electricity generation from renewable sources	version 11.0
8	<u>Methodological tool</u> TOOL07: Tool to calculate the emission factor for an electricity system	version 2
9	<u>Licenses</u> - Operation license # 4055/2012 – Environmental Agency of the State of Santa Catarina (FATMA) - Concession contract for electricity generation # 015/2002 and its 7 addenda – ANEEL	31/05/2012 23/04/2002; 23/07/2004; 20/08/2007; 03/10/2008; 24/08/2009; 07/07/2011; 04/11/2011; 13/03/2012
10	Pictures (nameplates) and Remote tour	22/11/2021
11	Raw data – SIGRO	2018, 2019 and 2020
12	Electricity generation and consumption (Infomercado – CCEE)	2018, 2019 and 2020
13	<u>Calibration Certificates</u> - Serial # PT-0902A536-01 - o Certificate # CC-0085-15 – Metrum – valid until 13/4/2020 - Serial # PT-0903A301-01 - o Certificate # CC-0087-15 – Metrum – valid until 13/4/2020 - Serial # PT-0903A335-01 - o Certificate # CC-0084-15 – Metrum – valid until 13/4/2020 - Serial # PT-0903A346-01	14/04/2015 14/04/2015 14/04/2015

	o Certificate # CC-0086-15 – Metrum – valid until 13/4/2020	14/04/2015
14	Emission Factor	http://antigo.mctic.gov.br/mctic/opencms/ciencia/SEPED/clima/textogeral/emissao_despacho.html
15	Infomercado – CCEE	https://www.ccee.org.br/relatoriodeadministracao/30-mercado-50.html
16	DNA of Brazil	mctic.gov.br
17	IPCC publications	www.ipcc-nggip.iges.or.jp
18	UNFCCC	http://cdm.unfccc.int
19	VCS	https://verra.org/

APPENDIX II: ABBREVIATIONS

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Crediting Period
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
FEPAM	Environmental Agency of the State of Rio Grande do Sul
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
kW	kilo Watt
MP	Monitoring Plan
MR	Monitoring Report
MW	Mega Watt
OM	Operating Margin
PE	Project Emission
PLF	Plant Load Factor
SIN	Brazilian Interconnected Electricity System
SHP	Small Hydropower Plant
tCO ₂ e	Tons of Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation and Verification Body
VCS-PD	VCS Project Design

APPENDIX III: FINDINGS

CL from this verification

CL ID	01	Section no.	2.2	Date: 23/11/2021
Description of CL				
Editorial and template issues: a. the header and footer of official VCS MR template are missing; b. Section 1.5: the reference to VCS Standard version 3.2 is outdated; c. Section 1.6: the reference to footnote 5 is not correct; d. Section 1.7: the map (Figure 2) presented is outdated; e. Section 4.1 – Table 11: the number of days presented at column “Days of operation” is no correct.				
Project participant response				Date: 02/12/2021
All issues raised in checking for editing error and in the document template have been revised in accordance with the latest version available. Please refer to the 2nd version of the document. Please refer to the revised version of the document.				
DOE assessment				Date: 09/12/2021
a. the VCS Joint PD and MR template is correctly formatted; b. Section 1.5: the reference to VCS Standard version 3.2 was excluded; c. Section 1.6: the reference was excluded; d. Section 1.7: the map was updated; e. Section 4.1 – Table 11: as the values are presented per year, the number of days was excluded. CL is closed				

CL ID	02	Section no.	4.2.1; 4.2.2	Date: 23/11/2021
Description of CL				
At Sections 2.1 and 2.2, it is missing an assessment about eventual net harm and stakeholder's access during the present monitoring period.				
Project participant response				Date: 02/12/2021
Added information on no net harm and local stakeholder's consultation actions and programs, regarding the crediting period. Please refer to the revised version of the document.				
DOE assessment				Date: 09/12/2021
Sections 2.1 and 2.2 were revised to include information related to the present monitoring period. Environmental concerns are permanent, and programs are continuously developed, and their performance is assessed as part of licensing renewal process. In addition, the plant has open channels with community and stakeholders to allow direct interaction, which are used for comments, suggestions and complaints. No comments, suggestions and complaints were observed in the period.				

CL is closed

CL ID	03	Section no.	3.3	Date: 23/11/2021
Description of CL				
During the interviews with PP's representatives, it was revealed that there was a change in the power capacity of the plant that was not reported at Section 3.2.2.				
Project participant response				Date: 02/12/2021
Information about changing installed capacity has been added. Please refer to the revised version of the document.				
DOE assessment				Date: 09/12/2021
The installed capacity of the plant and assured energy were revised to 191.88 MW and 114.1 MW _{avg} , respectively. The changes were duly approved at the time by VCS and are the actual capacities of the plant and now reported at section 3.2.2 of the MR.				
CL is closed				

CL ID	04	Section no.	4.4	Date: 23/11/2021
Description of CL				
At Section 4.2				
a. parameter $EG_{facility}$: - it is missing the description of the characteristics of the meters used (i.e., serial number, type, model, accuracy); - calibration frequency and calibrations performed.				
b. parameter A_{PJ} : - it is not clear how the parameter is monitored, as at the description of measurement methods, all possible means are stated; - it not clear if the monitoring was performed in a monthly frequency, as stated in the registered VCS-PD.				
Project participant response				Date: 02/12/2021
The parameters (A_{PJ} and $EG_{facility}$) were revised according to the methodology applied to the second crediting period. Please refer to the revised version of the document.				
DOE assessment				Date: 09/12/2021
a. parameter $EG_{facility}$: - the characteristics of the meters used are described and they are in accordance with national regulations; - calibration frequency and calibration performed are stated;				
b. parameter A_{PJ} : - it is not clear that the parameter is monitored with electronic devices and compared to topographical studies from the project design; - the frequency of monitoring is monthly, in accordance with registered monitoring plan.				
CL is closed				

CAR from this verification

CAR ID	01	Section no.	4.4	Date: 23/11/2021
Description of CAR				
In Section 4.2: - parameters $EF_{grid,CM}$, $EF_{grid,OM}$ and $EF_{grid,BM}$: the period ends in 18/01/2020; - parameter $EF_{grid,CM}$: the value presented for 2019 is not in accordance with Excel calculations; - parameter $EF_{grid,OM}$: the value presented for 2020 is not in accordance with Excel calculations				
Project participant response				Date: 02/12/2021
Parameter values have been revised. Please refer to the revised version of both documents.				
DOE assessment				Date: 09/12/2021
The parameters $EF_{grid,CM}$, $EF_{grid,OM}$ and $EF_{grid,BM}$ were revised accordingly. CAR is closed				

CAR ID	02	Section no.	4.4	Date: 23/11/2021
Description of CAR				
The values used for the ER calculations are not related to <u>net</u> electricity delivered to the grid. In addition, the values of SIGRO (supervisory system of the plant) were not presented in the Excel calculations, which does not enable the verification if the most conservative values are being used for the calculations.				
Project participant response				Date: 02/12/2021
The values of net electric energy were revised, and the most conservative value among the SIGRO and CCEE was used. Please refer to the revised version of both documents.				
DOE assessment				Date: 09/12/2021
The net electricity generation was considered for the calculations and all values from main monitoring and crosscheck values are presented, enabling the comparison and the use of more conservative ones. CAR is closed				

CAR ID	03	Section no.	4.4	Date: 11/02/2022
Description of CAR				
It is not clear why the total EG_y is different from the sum of hourly EG_h considering that the equation for determining the EF_{OM} takes into account hourly EG and total EG (cells E8 and E10).				
Project participant response				Date: 11/02/2022
Revision and corrections were done and EF_{OM} is being divided by annual hourly generation.				
DOE assessment				Date: 11/02/2022

Revision was properly performed in the calculation of parameter EF_{OM} and consequently to the calculation of EF_{OM} and baseline emissions.
CAR is closed

FAR from this verification

Not applicable

APPENDIX IV: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Competence Statement			
Name	Sergio Bonanno Cruz		
Country	Brazil		
Education	Post Graduate Diploma in Environment		
Experience	+25 Years		
Field	Environmental Law, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	ACM0001, ACM0002, AM0026, ACM0006, AMS ID		
Local expert	Brazil, Chile, Colombia		
Financial Expert	Yes		
Technical Reviewer	Yes		
TA Expert	1.2, 13.1		
Reviewed by	Shreya Garg	Date	29/08/2019
Approved by	Anshika Gupta	Date	29/08/2019

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	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.		
Local expert	Brazil, Chile, Honduras, Colombia		
Financial Expert	Yes		
Technical Reviewer	Yes		
TA Expert	1.1, 1.2, 4.1, 5.1, 9.1, 13.1		
Reviewed by	Shreya Garg	Date	01/03/2018
Approved by	Anshika Gupta	Date	01/03/2018