BAESA PROJECT

Document Prepared By RINA Services S.p.A. (RINA)

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Contact	Via Corsica 12, 16128 Geneva, Italy. Tel + 390105385664 www.rina.org
Approved By	**Laura Severino** (Authorized officer signing for the DOE) Head of Certification Innovation & Sustainability Unit 
Work Carried Out By	Thaís de Lima Carvalho: Team Leader, verifier, technical expert

Summary:

RINA Services S.p.A. (RINA), commissioned by Ecofinance Negócios is verifying the greenhouse gas emission reductions reported for the project activity "BAESA Project" in Brazil, VCS project ID 10, for the period 01/01/2011 to 31/12/2015. The verification includes confirming the implementation of the monitoring plan of the VCS PD (Project ID 10) and the application of the monitoring methodology as per ACM0002, version 7 dated 30/11/2007. A remote site visit (via video conference) was conducted to verify the data submitted in the monitoring report.

BAESA project activity is the construction and operation of Barra Grande Hydro Power Plant (HPP), a greenfield hydro power plant implemented in single reservoir, where the power density of the reservoir calculated using the applicable methodology is greater than 4 W/m2. Barra Grande HPP is located in the Southern Region of Brazil, between the cities of Anita Garibaldi, state of Santa Catarina and Pinhal da Serra, state of Rio Grande do Sul. The plant uses hydraulic potential of Pelotas River to generate electricity with an installed capacity of 708 MW and assured energy (medium energy) of 380.6 MWh average.

The objective of the verification is to have an independent review ex post determination of the monitored reductions in GHG emission reductions, Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 4.0 Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification

The verification shall ensure that reported emission reductions are complete and accurate in

accordance with applicable VCS / CDM requirements in order to be certified.

In conclusion, it is RINA's opinion that the project activity "*BAESA Project*", in "Brazil", as described in the Monitoring Report version 3 of 12/08/2020, meets all relevant requirements for VCS activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 7 of 30/11/2007. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2011 to 31/12/2015 amount to 4,586,251 tCO2e.

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1 INTRODUCTION

1.1 Objective

RINA is commissioned by "Ecofinance Negócios" to perform an independent verification of its VCS project, "BAESA Project" in Brazil, already registered under VCS with Project ID.10 for the reported GHG emission reductions for the given monitoring period 01/01/2011 to 31/12/2015. The VCS projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs/VCUs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and

To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

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1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the requirements of VCS version 4.0 and related rules and guidance. RINA has, based on the recommendations in the latest version of CDM Validation and Verification Manual, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring

1.3 Level of Assurance

The draft final verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions, with reasonable level of assurance.

The verification team and the technical reviewers consist of the following personnel:

Role	Last Name	First Name	Country
Team Leader, Verifier, Technical Expert	Carvalho	Thaís	Brazil
Technical reviewer	Amalorpavanathan	Cyril Augustus	India

1.4 Summary Description of the Project

BAESA project activity is the construction and operation of Barra Grande Hydro Power Plant (HPP), a greenfield hydro power plant implemented in single reservoir, where the power density of the reservoir calculated using the applicable methodology is greater than 4 W/m2.

Barra Grande Hydro Power Plant is owned by BAESA - Energética Barra Grande S.A (BAESA).

The plant uses hydraulic potential of Pelotas River to generate electricity with an installed capacity of 708 MW and assured energy (medium energy) of 380.6 MWh average. The project uses three Francis Turbines (each one with 236 MW of installed capacity). Each generation unit has three meters. One (1) meter for each turbine located at the Powerhouse measures total electricity generation and two (2) meters for each generation unit located at the substation are responsible for net electricity measurement.

Project Participant(s)	Ecofinance Negócios BAESA - Energética Barra Grande S.A		
Project Title	BAESA Project		
Location of the project	Barra Grande HPP is located in the Southern Region of Brazil, between the cities of Anita Garibaldi, state of Santa Catarina and Pinhal da Serra, state of Rio Grande do Sul., Southern region of Brazil		
Methodology(ies)	ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 7 of 30/11/2007		
Sectoral Scope(s)	1	Technical Area(s)	1.2
Registered PD	Version 4 of 03/02/2009		
Starting date of the crediting period	11/01/2005 (Operation Starting Date of the First Turbine), as defined in the registered VCS PD		
Project's crediting period	01/01/2006 to 31/12/2015		
Project documentation link	VCS database: https://registry.verra.org/app/projectDetail/VCS/10		

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Requirements, i.e. VCS Program Guide, VCS Version 4.0 of 19/09/2019, and VCS Standard, VCS Version 4.0 of 19/09/2019. The GHG emission reductions are on the basis of the approved Baseline and monitoring methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 7 of 30/11/2007.

The verification consisted of the following three phases

- Document review;
- Remote On-site assessment including Interviews and Site Inspections, via videoconference;
- Resolution of Any Material Discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.2 Document Review

The monitoring report (MR), version 3 of 12/08/2020 and previous version /02 /, the emission reduction calculations spreadsheet "Emission Reduction - V03.xlsx version 3 of 12/08/2020 and previous version /03/, were assessed as part of the verification.

The following table lists the documentation that were reviewed during the verification

/01/	Enerbio Consultoria Ltda.: VCS project description for project activity "BAESA Project version 4 of 03/02/2009 (registered);
/02/	Ecofinance Negócios: VCS monitoring report for the project activity "BAESA Project", version 1.0 of 30/04/2020; version 2 of 07/08/2020; version 3 of 12/08/2020
/03/	Ecofinance Negócios: Emission Reduction spreadsheet "Emission Reduction.xlsx" version 1 of 30/04/2020; Emission Reduction - V02.xlsx version 2 of 07/08/2020; Emission Reduction - V03.xlsx version 3 of 12/08/2020
/04/	VCS: VCS Program Guide, VCS Version 4.0 of 19/09/2019
/05/	VCS: VCS Standard, VCS Version 4.0 of 19/09/2019
/06/	CDM Executive Board: Approved consolidated baseline and monitoring methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 7 of 30/11/2007
/07/	Website: https://verra.org/project/rina-services-s-p-a/ VCS: List of sectoral scopes RINA S.p.A is accredited Language: English Retrieved on: 01/07/2020
/08/	Brazilian DNA web site, data for the emission factor available in Portuguese at < http://www.mctic.gov.br/mctic/opencms/ciencia/SEPED/clima/textogeral/emissao_despacho.html > , accessed on 02/07/2020
/09/	*Bureau Veritas verification report N°BRAZIL-VER/03616/2008 - Version 03 of 20/03/2009 for first monitoring period 01/01/2006 to 31/12/2008; *BUREAU VERITAS CERTIFICATION, verification report version 3 of 22/03/2012 for the second monitoring period 01/01/2009 to 31/12/2010
/10/	Bureau Veritas validation report of BAESA Project, N°BRAZIL-VAL/03615/2008 Version 03 dated 09/02/2009
/11/	IBAMA operation license number 447/2005, issued on 04/07/2005 (Licença de Operação n° 447-2005.pdf); renewal of the operation license, dated 26/03/2014 valid for 10 years (2ª Renovação RLO447_2005 março- 2014.pdf)
/12/	ONS procedure 12.3 «Manutenção do sistema de medição para faturamento»
/13/	CCEE (Câmara de Comercialização de Energia Elétrica/ Electric Power Commercialization Chamber) data for the net energy generation for the UHE BAESA
/14/	CAM calibration certificate 15863/12 for the energy meter serial number PT-1201A372-01, performed on 07/03/2012 /14/ (PT-1201A372-01 - MPU1.jpg)

/15/	CAM calibration certificate 15863/15 for the energy meter serial number PT-1201A373-01, performed on 07/03/2012 /15/ (PT-1201A373-01 - MRU1.jpg)
/16/	CAM calibration certificate 15807/07 for the energy meter serial number PT-1201A394-01, performed on 05/03/2012 /16/ (PT-1201A394-01 - MPU2.jpg)
/17/	CAM calibration certificate 15863/09 for the energy meter serial number PT-1201A434-01, performed on 07/03/2012 /17/ (PT-1201A434-01 - MRU2.jpg)
/18/	CAM calibration certificate 15863/10 for the energy meter serial number PT-1201A498-01, performed on 07/03/2012 /18/ (PT-1201A498-01 - MPU3.jpg)
/19/	-CAM calibration certificate 15819/17 for the energy meter serial number PT-1201A505-01, performed on 06/03/2012 /19/ (PT-1201A505-01)
/20/	CAM calibration certificate 15863/13 for the energy meter serial number PT-1201A467-01, performed on 07/03/2012 /20/ (PT-1201A467-01 - UG1.jpg)
/21/	CAM calibration certificate 15807/13 for the energy meter serial number PT-1201A475-01, performed on 05/03/2012 /21/ (PT-1201A475-01 - UG2.jpg)
/22/	CAM calibration certificate 15882/11 for the energy meter serial number PT-1201A508-01, performed on 08/03/2012 /22/ (PT-1201A508-01 - UG3.jpg)
/23/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02034 /2014 for the energy meter PT-1201A505-01, performed on 27/02/2014 (14MW02034.pdf)
/24/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02033 /2014 for the energy meter PT-1201A498-01, performed on 26/02/2014 (14MW02033.pdf)
/25/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02032 /2014 for the energy meter PT-1201A434-01, performed on 27/02/2014 (14MW02032.pdf)
/26/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02031 /2014 for the energy meter PT-1201A394-01, performed on 27/02/2014 (14MW02031.pdf)
/27/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02030 /2014for the energy meter PT-1201A373-01, performed on 27/02/2014 (14MW02030.pdf)
/28/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02029 /2014 for the energy meter PT-1201A372-01, performed on 26/02/2014 (14MW02029.pdf)
/29/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02027 /2014 for the energy meter PT-1201A508-01, performed on 26/02/2014 (14MW02027.pdf)
/30/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02026 /2014 for the energy meter PT-1201A475-01, performed on 26/02/2014 (14MW02026.pdf)
/31/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02025 /2014 for the energy meter PT-1201A467-01, performed on 26/02/2014 (14MW02025.pdf)
/32/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01004 for the energy meter 490192, performed on 11/01/2011 (11MW01004 Baesa 490192.pdf)
/33/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01005 for the energy meter 490191, performed on 11/01/2011 (11MW01004 Baesa 490191.pdf)
/34/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01006 for the energy meter 490186, performed on 11/01/2011 (11MW01006 Baesa 490186.pdf)
/35/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N°

	11MW01007 for the energy meter 490187, performed on 11/01/2011 (11MW01007 Baesa 490187.pdf)
/36/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01008 for the energy meter 490190, performed on 11/01/2011 (11MW01008 Baesa 490190.pdf)
/37/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01009 for the energy meter 490189, performed on 11/01/2011 (11MW01009 Baesa 490189.pdf)
/38/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01003 for the energy meter 490185, performed on 11/01/2011 (11MW01003 Baesa 490185.pdf)
/39/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01002 for the energy meter 490183, performed on 11/01/2011 (11MW01002 Baesa 490183.pdf)
/40/	METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01001 for the energy meter 490184, performed on 11/01/2011 (11MW01001 Baesa 490184.pdf)
/41/	METRUM Service report for the meters change in 01/08/2012 (Relatório de substituiç¦o medidores.pdf)
/42/	Spreadsheets' with the meters' readings (SCDE)
/43/	Spreadsheet with data from CCEE x SCDE "Energia Liquida e Bruta UHE Barra Grande 2011 a 2015Final.xlsx" version 1; Energia Liquida e Bruta UHE Barra Grande 2011 a 2015Final -V02.xlsx
/44/	Pictures and videos from the project intallation, turbines, generators and energy meters (22/07/2020)

2.3 Interviews

	Date	Name	Organization	Topic
/a/	22/07/2020	Marco Aurélio Villar Souza O&M Manager	BAESA	Project implementation, Equipment's installed Monitored parameters Meters' calibration
/b/	22/07/2020	Ricardo Scapinelli O&M Engineer	BAESA	
/c/	22/07/2020	Alberto de Souza O&M Supervisor	BAESA	
/d/	22/07/2020	Eduardo Ciocari-Generation operation Engineer	CPFL	
/e/	22/07/2020	Rafael Pereira	BAESA	
/f/	22/07/2020	Eduardo Baltar-consultant	Ecofinance	Monitoring report, VERs calculation Data analysis

2.4 Site Inspections

A complete desk review of the submitted MR (version 1) /2/ and supportive evidences have been checked by the Verification Team.

In addition, audit team has conducted a remote site inspection via videoconference (teams) with PP on different topics as mentioned in the following sections of this report.

Based on the videoconference, MR review, as the review of VCC procedures and guidelines, RINA Verification team has proceeded to skip the presential site visit due to the COVID-19 pandemic. Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification.

- By review of MR;
- By taking follow up actions by conducted interview with PP, to gather information about knowledge of project design, current situation via videoconference. Cross-checked evaluation under the scope of all information and references provided in MR. Details of interviewees, topics covered and additional information presented in the above section "1.8 – Interviews".

Verification team has done the follow-up actions by:

1. Videoconference with PP. Teams and Whats APP were used with the video camera function. PP also has provided pictures and videos to confirm the installed equipment.
2. Data for the monitored parameters were provided and cross checked with third part documents (CCEE for energy registers, environmental license for the reservoir area)
3. PP presented all documents related to monitoring and equipment calibration.

The calculations and assumptions made in determining the CERs were reviewed and discussed with PP by videoconference.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project description. To guarantee transparency any findings raised during the verification are incorporated in the Appendix A to this report. A corrective action request (CAR) is raised if one of the following occurs:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.
- The VCS Version 4.0 requirements have not been met.
- There is a risk that the emission reductions cannot be monitored or calculated.

Describe the process for the resolution of any findings (corrective actions and clarifications or other findings) raised by the verification team during the verification and, where applicable, outstanding forward action requests from the validation or previous verifications.

During this verification 03 Clarification Requests (CRs) and 03 CAR (Corrective Actions) were identified related to the monitoring, implementation or operations of the proposed VCS project activity (Monitoring Report version 1.0 of 30/04/2020) in relation to all relevant VCS requirements v 4.0 for the project activity and the applied baseline and monitoring methodology; these findings have been discussed in appendix B of this report. All CARs and CRs were correctly addressed by PP and closed (Monitoring report version 3 of 12/08/2020). Details of CARs and CRs identified are included in the verification protocol in Appendix A of this report.

2.5.1 Forward Action Requests

No FAR was raised during the verification.

2.6 Eligibility for Validation Activities

RINA is accredited for validating and verifying GHG emission reduction project activities falling under sectoral scope 01 Energy industries (renewable/non-renewable sources) /07/.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Not applicable. The project is not included in any other emission trading program or mechanism

3.2 Methodology Deviations

No methodology deviation applicable in the current monitoring period.

3.3 Project Description Deviations

The Project Description (PD) validated and registered predicts that HPP Barra Grande follows the ONS Grid Procedures to make the calibration of its electricity meters. ONS Grid Procedures (Sub-module 12.3) defines the calibration frequency and other maintenance procedures. According to this procedure, meters should be calibrated each two years.

For this third monitoring period, there are 11 days of the first month (January/2011) were meters were not calibrated. There was a delay in hiring the calibration service provider by the company. Conservatively, due to the calibration delay, for January/2011, it was applied the error identified in the delayed calibration test, once the error is beyond the maximum permissible error of the measuring equipment. The maximum error identified at calibration certificates issued at 2011 were applied to Total Electricity Generated (TEGy) and Electricity Supplied to the Grid – Net Electricity (EGy). For TEGy, the maximum error identified was 0.319%. For EGy, 0.565%. Conservatively, these errors were applied to the whole amount of electricity measured in January/2011. Despite, meters had not been calibrated during just eleven days of the month. It is RINA's opinion that PP has followed the requirements of Validation and Verification Manual version 3.2 (*Non-conformance with the validated monitoring plan: To resolve this issue, the project proponent submitted a project description deviation applicable to the reporting period, justifying the conservativeness of the alternative approach*)

3.4 Grouped Project

The verification team confirms that the project is not a grouped project and hence this is not applicable to the project activity.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

It was verified during the remote audit conducted on 23/07/2020 that the proposed project activity has been implemented and it is in operation in accordance to the project activity described in the registered VCS PD /01/

The project activity is a greenfield hydro power plant implemented in single reservoir, where the power density of the reservoir calculated using the applicable methodology is greater than 4 W/m2. The project uses three Francis Turbines (each one with 236 MW of installed capacity). Each generation unit has three meters. One (1) meter for each turbine located at the Powerhouse measures total electricity generation and two (2) meters for each generation unit located at the substation are responsible for net electricity measurement.

4.2 Safeguards

4.2.1 No Net Harm

The assessment of socio-economic and environmental impacts of the project activity is part of the environmental licensing required by the environmental agency (IBAMA) to issue the Installation and Operational Permits.

RINA verified that the programs listed in the Monitoring report is in accordance with registered PD.

4.2.2 Local Stakeholder Consultation

RINA verified that the local stakeholder consultation was conducted at the validation stage /10/. The public audience is one of the phases of the environmental impact assessment and one of the main channels of community participation at a local level before project construction. RINA confirmed in the validation report /10/ that also stakeholders were invited to comment in the project and no comments were received.

PP has provided the valid operational license, issued by IBAMA /11/.

4.3 AFOLU-Specific Safeguards

Not applicable. It is not AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

According to the methodology ACM0002, version 7.0 and registered PD, the emissions reductions are calculated as follows:

Emission Reduction (ERy):

$$ERy = BEy - PEy - LEy$$

Where:

ERy = Emission reductions in year y (tCO2e/yr);
BEy = Baseline emissions in year y (tCO2e/yr);
PEy = Project emissions in year y (tCO2e/yr).
LEy = Leakage emissions in year y (t CO2e/yr)

Project emissions (PEy)
New hydro electric power projects resulting in new reservoirs, shall account for emissions from reservoirs, estimated as follows:

a) If the power density (*PD*) of power plant is greater than 4 W/m2 and less than or equal to 10 W/m2:

$$PEy = EF_{res} \times TEGy / 1000$$

Where:
PEy = Emission from reservoir expressed as tCO2e/year;
EFRes = Default emission factor for emissions from reservoirs, and the default value as per EB23 is 90 Kg CO2e/MWh;
TEGy = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh

b) If power density (PD) of the project is greater than 10W/m2, PEy = 0.

The power density of the project activity is calculated as follows:
$PD = Cap_{PJ} - Cap_{BL} / A_{PJ} - A_{BL}$
Where:
PD = Power density of the project activity (W/m^2)
Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)
Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero
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 (m^2)
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 (m^2). For new reservoirs, this value is zero.

CapPJ = 708,000,000
APJ= = 94,000,000

Power density = 708,000,000/ 94,000,000= 7.53 W/m2, so project emissions are calculated.

PEy= EFres x TEGy/ 1000 =

2011= 90 x4,041,741.94= 363,757.00 tCO2e

2012=90 x1,829,864.56= 164,688.00 tCO2e

2013=90 x3,021,101.10= 271,900.00 tCO2e

2014=90 x 4,284,859.58= 385,638.00 tCO2e

2015=90 x 3,703,241.72= 333,292.00 tCO2e

Total= 1,519,275 tCO2e (rounded up)

Leakage
In accordance with the applied methodology, Leakage is zero.

Baseline Emissions (BEy):

$BEy = (EG_{,y} - EG_{,baseline}) * EF_{grid,CM,y}$

Where:

BEy = Baseline emissions in year y (tCO_2/yr);
EG_y = Electricity supplied by the project activity to the grid (MWh)
EGbaseline = Baseline electricity supplied to the grid in case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero. The HPP Barra Grande is a new power plant to be connected to the interconnected grid, therefore, the
$EG_{baseline}$ *is 0 (zero).*
$EF_{grid,CM,y}$ = Combined margin CO2 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" (tCO_2/MWh).

During the onsite visit, RINA cross checked data in the VERs spreadsheet against data from CCEE /13/
The total energy delivered to the grid (net) during the monitoring period is 16,723,101 MWh.

CO_2 emission factor of the grid (EFy)
The CO2 emission factor of the grid is the result of a weighted average of two emission factors pertaining to the electricity system: the "operating margin" (OM) and the "build margin" (BM). In the case of this project activity, parameters were calculated in accordance with the "Tool to calculate the emission factor for an electricity system" and were determined *ex-post*, as presented in the registered PD.
The Brazilian DNA made available the emission factor calculation based on information of the grid power plants only /08/.

Considering 0.5 as the weights for OM and BM emission factors available for renewable energy projects, excluding solar and wind power projects, the CO2 emission factors considered in this monitoring period are as follows:

- 2011 –0.1988 tCO2/MWh
- 2012 – 0.3593 tCO2/MWh
- 2013 – 0.4322 tCO2/MWh
- 2014 – 0.4400 tCO2/MWh
- 2015 – 0.4075 tCO2/MWh

The baseline emissions for the monitoring period is equal
2011= 4,005,411 x 0.1988 =796,192.00 tCO2e
2012= 1,776,857x 0.3593 = 638,439.00 tCO2e
2013= 3,002,169x 0.4322 =1,297,675.00 tCO2e
2014= 4,257,859 x 0.4400 = 1,873,369.00 tCO2e
2015= 3,680,805x0.4075 =1,499,851.00 tCO2e
Total= 6,105,526 tCO2e (rounded down)

Therefore, ERy= BEy-PEy-LEy = 6,105,526- 1,519,275- 0= 4,586,251 tCO2e

Parameters available at the time of validation:
EF_{Res} ($kgCO_2e/MWh$): Default emission factor for emissions from reservoirs. Default value 90 $kgCO_2e$/MWh, in accordance with the applied methodology /06/ and registered PD /01/.

GWP_{CH4} (CO2e/t CH4): 25, in accordance with VCS standard version 4: 3.14.4 The six Kyoto Protocol greenhouse gases and ozone-depleting substances shall be converted using 100-year global warming potentials derived from the IPCC's *Fourth Assessment Report.*

Cap_{BL} (W): Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero, in accordance with applied methodology /06/ and registered PD /01/

ABL (m2): Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2). For new reservoirs, this value is zero, in accordance with applied methodology /06/ and registered PD /01/

Data and parameters monitored ex-post:

The following parameters are monitored :

Data/Parameter	Electricity Supplied to the Grid – Net Electricity (EGy)
Data Unit	MWh
Description	Electricity supplied by the project activity to the grid
Source of data to be used	Project activity site (Meters at substation)
Value of monitored parameter for the monitoring period	**Value**: • 2011 – 4,005,411 MWh • 2012 – 1,776,857 MWh • 2013 – 3,002,169 MWh • 2014 – 4,257,859 MWh • 2015 – 3,680,805 MWh

	Cross check: RINA has cross checked the information against the energy meters' readings /42/ and information from CCEE reports /13/. For the monitoring period, data from CCEE is more conversative and it was used in the VERs calculation.
Monitoring equipment	Each turbine/generator has two specific meters (one principal and one rear) located in the Substation that registers net electricity generation supplied to the grid by the turbine/generator. The following meters are applicable to the project activity: **Principal Meter - Turbine 01** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490192 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01004 for the energy meter 490192, performed on 11/01/2011 /32/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A372-01 -CAM calibration certificate 15863/12 for the energy meter serial number PT-1201A372-01, performed on 07/03/2012 /14/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02029 /2014 for the energy meter PT-1201A372-01, performed on 26/02/2014 /28/ **Rear Meter - Turbine 01** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490191 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01005 for the energy meter 490191, performed on 11/01/2011 /33/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A373-01 -CAM calibration certificate 15863/15 for the energy meter

	serial number PT-1201A373-01, performed on 07/03/2012 /15/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02030 /2014for the energy meter PT-1201A373-01, performed on 27/02/2014 /27/ **Principal Meter - Turbine 02** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490186 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01006 for the energy meter 490186, performed on 11/01/2011 /34/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A394-01 CAM calibration certificate 15807/07 for the energy meter serial number PT-1201A394-01, performed on 05/03/2012 /16/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02031 /2014 for the energy meter PT-1201A394-01, performed on 27/02/2014 /26/ **Rear Meter - Turbine 02** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490187 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01007 for the energy meter 490187, performed on 11/01/2011 /35/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A434-01 -CAM calibration certificate 15863/09 for the energy meter serial number PT-1201A434-01, performed on 07/03/2012 /17/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02032 /2014 for the energy meter PT-1201A434-01, performed on 27/02/2014 /25/

	Principal Meter - Turbine 03 Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490190 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01008 for the energy meter 490190, performed on 11/01/2011 /36/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A498-01 -CAM calibration certificate 15863/10 for the energy meter serial number PT-1201A498-01, performed on 07/03/2012 /18/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02033 /2014 for the energy meter PT-1201A498-01, performed on 26/02/2014 /24/ **Rear Meter - Turbine 03** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490189 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01009 for the energy meter 490189, performed on 11/01/2011 /37/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A505-01 -CAM calibration certificate 15819/17 for the energy meter serial number PT-1201A505-01, performed on 06/03/2012 /19/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02034 /2014 for the energy meter PT-1201A505-01, performed on 27/02/2014 /23/
Accuracy of the monitoring equipment	Class D (0.2 %), in accordance with ONS requirements /12/ .
Measuring/Reading/Recording frequency	Hourly measurement and monthly recording.
Calculation method (if applicable)	Not applicable.

Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	The calibration periodicity is in accordance with the ONS requirements. Previous to 2017 year, calibration should be conducted each 2 years. (Note: according to updated ONS procedures valid on 01/01/2017 onwards, energy meter calibration shall be conducted in a 5-year period- not applicable to the monitoring period). For this third monitoring period, there are 11 days of the first month (January/2011) were meters were not calibrated. There was a delay in hiring the calibration service provider by the company. Conservatively, due to the calibration delay, for January/2011, it was applied the error identified in the delayed calibration test, once the error is beyond the maximum permissible error of the measuring equipment. The maximum error identified at calibration certificates issued at 2011 were applied to Total Electricity Generated (TEGy) and Electricity Supplied to the Grid – Net Electricity (EGy). For TEGy, the maximum error identified was 0.319%. For EGy, 0.565%. Conservatively, these errors were applied to the whole amount of electricity measured in January/2011. Despite, meters had not been calibrated during just eleven days of the month. It is RINA's opinion that PP has followed the requirements of Validation and Verification Manual version 3.2 (*Non-conformance with the validated monitoring plan: To resolve this issue, the project proponent submitted a project description deviation applicable to the reporting period, justifying the conservativeness of the alternative approach*)

Data/Parameter	Total Electricity Generated (TEG_y)
Data Unit	MWh
Description	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y.
Source of data to be used	Project activity site (Meters located at the powerhouse)
Value of monitored parameter for the monitoring period	• 2011 – 4,041,741 MWh • 2012 –1,829,864 MWh • 2013 – 3,021,101 MWh • 2014 – 4,284,859 MWh • 2015 – 3,703,241 MWh

	Cross check: RINA has cross checked the information against the energy meters' readings /42/ in accordance with the registered PD.
Monitoring equipment	Each turbine/generator has one specific meter located in the Powerhouse that registers total electricity generated by the turbine/generator. **Meter - Turbine 01** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490185 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01003 for the energy meter 490185, performed on 11/01/2011 /38/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A467-01 -CAM calibration certificate 15863/13 for the energy meter serial number PT-1201A467-01, performed on 07/03/2012 /20/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02025 /2014 for the energy meter PT-1201A467-01, performed on 26/02/2014 /31/ **Meter - Turbine 02** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490183 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01002 for the energy meter 490183, performed on 11/01/2011 /39/ From 01/08/2012 /41/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A475-01 -CAM calibration certificate 15807/13 for the energy meter serial number PT-1201A475-01, performed on 05/03/2012 /21/

	- METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02026 /2014 for the energy meter PT-1201A475-01, performed on 26/02/2014 /30/ **Meter - Turbine 03** Supplier: ZIV Type: 5CTE-E5A-2F6402UC Class: 0.2% Serial Number: 490183 -METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 11MW01001 for the energy meter 490184, performed on 11/01/2011 /40/ From 01/08/2012 /42/ Supplier: Schneider Electric Type: ION 8600 Class: D (0.2%) Serial Number: PT-1201A508-01 - CAM calibration certificate 15882/11 for the energy meter serial number PT-1201A508-01, performed on 08/03/2012 /22/ - METROWATT COMÉRCIO E MANUTENÇÃO LTDA calibration certificate N° 14MW02027 /2014 for the energy meter PT-1201A508-01, performed on 26/02/2014 /29/
Accuracy of the monitoring equipment	Class D (0.2 %), in accordance with ONS requirements /12/ .
Measuring/Reading/Recording frequency	Hourly measurement and monthly recording.
Calculation method (if applicable)	Not applicable.
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	The calibration periodicity is in accordance with the ONS requirements. Previous to 2017 year, calibration should be conducted each 2 years. (Note: according to updated ONS procedures [1] valid on 01/01/2017 onwards, energy meter calibration shall be conducted in a 5-year period- not applicable to the monitoring period). For this third monitoring period, there are 11 days of the first month (January/2011) were meters were not calibrated.

[1] ONS procedures. "Sub-module 12.3 Maintenance of the metering system for invoicing" (in a free translation from the Portuguese *Submódulo 12.3. Manutenção do sistema de medição para faturamento*). Available at ONS's webiste: <http://ons.org.br/pt/paginas/sobre-o-ons/procedimentos-de-rede/vigentes>

	There was a delay in hiring the calibration service provider by the company. Conservatively, due to the calibration delay, for January/2011, it was applied the error identified in the delayed calibration test, once the error is beyond the maximum permissible error of the measuring equipment. The maximum error identified at calibration certificates issued at 2011 were applied to Total Electricity Generated (TEGy) and Electricity Supplied to the Grid – Net Electricity (EGy). For TEGy, the maximum error identified was 0.319%. For EGy, 0.565%. Conservatively, these errors were applied to the whole amount of electricity measured in January/2011. Despite, meters had not been calibrated during just eleven days of the month. It is RINA's opinion that PP has followed the requirements of Validation and Verification Manual version 3.2 (*Non-conformance with the validated monitoring plan: To resolve this issue, the project proponent submitted a project description deviation applicable to the reporting period, justifying the conservativeness of the alternative approach*)

Data/Parameter	Cap_{PJ}
Data Unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data to be used	Project site
Value of monitored parameter for the monitoring period	708,000,000 Cross check: Confirmed in the equipments specification . Sum of Installed capacity of the turbines (3 turbines of 236 MW) as indicated by manufacturer's specifications, confirmed during the videoconference remote audit.
Monitoring equipment	Not applicable
Accuracy of the monitoring equipment	Not applicable
Measuring/Reading/Recording frequency	yearly
Calculation method (if applicable)	Not applicable
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	Not applicable

Data/Parameter	A_{PJ}
Data Unit	m^2
Description	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.
Source of data to be used	Project site
Value of monitored parameter for the monitoring period	Value: 94,000,000 Cross check: Value is in accordance with the valid operation license /11/.
Monitoring equipment	N/A
Accuracy of the monitoring equipment	N/A
Measuring/Reading/Recording frequency	yearly
Calculation method (if applicable)	Not applicable
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	N/A

Data/Parameter	$EF_{grid,CM,y}$
Data Unit	tCO2/MWh
Description	Combined margin CO2 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".
Source of data to be used	The combined margin emission factor will be calculated using the procedures of the "Tool to calculate the emission factor for an electricity system". $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ data will be supplied by Brazilian Designated National Authority (DNA). The combined margin emission factor used on BAESA Project will be calculated based on National Interconnected System supplied by Brazilian DNA.
Value of monitored parameter for the monitoring period	Value: • 2011 –0.1988 tCO2/MWh • 2012 – 0.3593 tCO2/MWh • 2013 – 0.4322 tCO2/MWh • 2014 – 0.4400 tCO2/MWh • 2015 – 0.4075 tCO2/MWh

	Cross check: RINA has cross the information presented in the MR and VERs spreadsheet against data publicity available by the Brazilian DNA /08/
Monitoring equipment	Not applicable
Accuracy of the monitoring equipment	Not applicable
Measuring/Reading/Recording frequency	-
Calculation method (if applicable)	As per the "tool to calculate the emission factor for an electricity system". Dispatch Data Analysis OM is the Operation Margin Emission Factor method used and the build margin emission factor is updated annually. Both Operating Margin Emission Factor and Build Margin Emission factor are supplied by MCTI. The combined margin emission factor considers the default value of 0.5 for each emission factor as recommended by the methodology.
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	Not applicable

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

A remote audit has been performed on 23/07/2020 and it is confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design. The monitoring is based only on data measured. The CERs calculation /03/ is based only in data obtained through the monitoring. The data presented in the monitoring report /02/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Verified during the remote audit, that the roles and responsibilities are in accordance with the registered PD.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent.

5 VERIFICATION CONCLUSION

RINA Service S.p.A (RINA) has performed verification of the emission reductions reported for the project activity "BAESA Project" in Brazil, VCS Registration Reference ID - 10, for the VCS monitoring period from 01/01/2011 to 31/12/2015, with regard to the relevant requirements for VCS and CDM rules.

The project participants Ecofinance Negócios and BAESA - Energética Barra Grande S.A of the project "BAESA Project" are responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered VCS Registration Reference ID – 10 and registered PD version 4 of 03/02/2009, for the VCS monitoring period from 01/01/2011 to 31/12/2015.

- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the VCS requirements and procedures and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- The project has been implemented and operated as per the registered VCS PD;

- The monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology.

- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements

It is RINA's opinion that the GHG emission reduction stated in the VCS monitoring report version 3 of 12/08/2020 for the "BAESA Project" in Brazil for the period 01/01/2011 to 31/12/2015 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the baseline and monitoring methodology, ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 7 of 30/11/2007.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2011 to 31/12/2015 amount to 4,586,251 tCO2e Verification period:

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2011	796,192.00	363,757.00	0	432,435.00
2012	638,439.00	164,688.00	0	473,751.00
2013	1,297,675.00	271,900.00	0	1,025,775.00
2014	1,873,369.00	385,638.00	0	1,487,731.00
2015	1,499,851.00	333,292.00	0	1,166,559.00
Total	**6,105,526.00**	**1,519,275.00**	0	**4,586,251.00**

6 APPENDIX A: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Table 1. Remaining FAR from validation and/or previous verifications

FAR ID		**Section no.**		**Date:**
Description of FAR				
No FAR in the previous verification				
Project participant response				**Date:**
Documentation provided by project participant				
DOE assessment				**Date:**

Table 2. CR from this verification

CR ID	1	**Section no.**	4.4	**Date:** 29/07/2020
Description of CR				
The value of the value GWPCH4 is not in accordance with VCS standard version 4: 3.14.4 The six Kyoto Protocol greenhouse gases and ozone-depleting substances shall be converted using 100-year global warming potentials derived from the IPCC's Fourth Assessment Report.				
Project participant response				**Date:** 31/07/2020// 12/08/2020
Monitoring Report Version 2 changed the value of CH4 GWP and it is now in accordance with 100-year global warming potentials derived from the IPCC's Fourth Assessment Report.				
Documentation provided by project participant				
Monitoring Report Version 2, Monitoring Report Version 3 (rounded numbers)				
DOE assessment				**Date:** 13/08/2020
MR was correctly revised. This CR is closed.				

CR ID	2	Section no.	4.4	Date: 29/07/2020
Description of CR				
Table 04- Calibration date and Company Responsible for of the MR describes the issuance date of the calibrations certificate in 2012, instead of date when the calibration of the meters were performed.				
Project participant response				**Date:** 31/07/2020// 12/08/2020
Monitoring Report Version 2 presents table 4 corrected and informing the dates when the calibration of the meters were performed. MR version 3 (rounded numbers)				
Documentation provided by project participant				
Monitoring Report Version 2 and calibration certificates already supplied to DOE during verification process.				
DOE assessment				**Date:** 13/08/2020
RINA verified that the MR was correctly revised to consider the calibration dates. This CR is closed				

CR ID	3	Section no.	4.4	Date: 29/07/2020
Description of CR				
RINA verified that the MR does not describe the current version of VCS standard. In addition, some numbers are not in the English format.				
Project participant response				**Date:** 31/07/2020// 12/08/2020
Monitoring Report Version 2 was corrected and mentions the current version of VCS Standard. *Numbers that were not in the English format were also corrected.*				
Documentation provided by project participant				
Monitoring Report Version 2, Monitoring Report Version 3 (rounded numbers)				
DOE assessment				**Date:** 13/08/2020
RINA verified that the MR was revised accordingly. This CR is closed				

Table 3. CAR from this verification

CAR ID	1	Section no.	4.4	Date: 29/07/2020
Description of CAR				
RINA verified that in the cross check spreadsheet, data from the energy meters-SCDE for the parameter **Electricity Supplied to the Grid – Net Electricity (EGy)** is not in accordance with the evidences in 2011: January, April, June-December and in 2015: May.				
Project participant response				**Date:** 07/08/2020// 12/08/2020
The spreadsheet where data from the energy meters-SCDE and data from CCEE were cross-checked was corrected. New version is supplied to DOE.				

Documentation provided by project participant	
Spreadsheet "Energia Liquida e Bruta UHE Barra Grande 2011 a 2015Final" Version 02 and spreadsheets from SCDE and CCEE that were already supplied to DOE during verification visit.	
DOE assessment	**Date:** 12/08/2020
RINA verified that documents were correctly revised in accordance with the evidences. This CAR is closed	

CAR ID	2	**Section no.**	4.4	**Date:** 29/07/2020
Description of CAR				
RINA verified that the calibration of the energy meters in 2011 was not performed in accordance wth the registered PD. PP did not follow the requirements of Validation and Verification Manual version 3.2 (Non-conformance with the validated monitoring plan: To resolve this issue, the project proponent submitted a project description deviation applicable to the reporting period, justifying the conservativeness of the alternative approach)				
Project participant response				**Date:** 07/08/2020// 12/08/2020
Monitoring Report Version 2 added a project description deviation. Despite meters were not calibrated during just 11 days of the January 2011, project participants applied the error identified in the delayed calibration test, which is beyond the maximum permissible error of the measuring equipment, during the whole month of January 2011 for Total Electricity Generated and Net Electricity supplied to the grid.				
Documentation provided by project participant				
Monitoring Report Version 2 and Emission Reduction Calculation Spreadsheet Version 02; Monitoring Report Version 3 and Emission Reduction Calculation Spreadsheet Version 03 (rounded numbers)				
DOE assessment				**Date:** 13/08/2020
RINA verified that a conservative approach (discount) was correct applied in accordance with the requirements of the Validation and Verification Manual version 3.2. This CAR is closed				

CAR ID	3	**Section no.**	4.4	**Date:** 29/07/2020
Description of CAR				
RINA verified that data used in the VERs spreadsheet is not in accordance with registered PD: Spreadsheets obtained directly from the meters with information generated hourly or according to what was programmed by CCEE. Moreover, RINA verified that in the cross check spreadsheet, data from the energy meters-SCDE for the parameter **Total Electricity Generated (TEG_y)** is not in accordance with the evidences in 2011: January, April, June-August, October- December; in 2012: August and in 2015: May.				
Project participant response				**Date:** 07/08/2020// 12/08/2020
The Monitorig Report, the cross check spreadsheet and the Emission Reduction Calculation spreadsheet were corrected. For parameter **Total Electricity Generated (TEG_y)** data from the energy meters-SCDE were considered. And values of January, April, June-August, October- December (2011); August (2012) and May (2015) were corrected in the cross check spreadsheet.				

Documentation provided by project participant	
Monitoring Report, version 2 and version 3 (rounded numbers), Spreadsheet “Energia Liquida e Bruta UHE Barra Grande 2011 a 2015Final” Version 02, Emission Reduction Calculation Spreadsheet Version 02 and spreadsheets from SCDE and CCEE that were already supplied to DOE during verification visit.	
DOE assessment	**Date:** 13/08/2020
RINA verified that documents were correctly revised in accordance with the evidences. This CAR is closed	

RINA SERVICES
classification, certification, inspection & testing

CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
*QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Thais De Lima Carvalho

è qualificato come:
is qualified as:

TEC, VAL, VER, TL, ITRP

per le seguenti aree tecniche:
for the following technical areas:

AREE TECNICHE *TECHNICAL AREAS*	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.1	Thermal energy generation	1
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	19/07/2016	First issue with new template (this certificate is linked to CDM qualification)

Responsabile di schema
Scheme Leader
Rita Valoroso

*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/riconosciuto da
RINA Services S.p.A. Is accredited /recognized by

UNFCCC	quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM *as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects*
VCSA	per condurre la Validazione e la Verifica di Progetti VCS *to carry out Validation and Verification of VCS Projects*
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS *to carry out Validation and Verification of GS Projects*
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS *to carry out Validation and Verification of SCS Reports*
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR *to carry out Validation and Verification of ACR projects*
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB *to carry out Validation and Verification of co-benefit CCB projects*

RINA SERVICES
classification, certification, inspection & testing

CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
*QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:
Cyril Augustus Arokiasamy Amalorpavanathan

è qualificato come:
is qualified as:
TEC, VAL, VER, TL, Local Expert, ITRP

per le seguenti aree tecniche:
for the following technical areas:

AREE TECNICHE *TECHNICAL AREAS*	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy Demand	3
5.1	Chemical Industry	5
13.1	Solid Waste and wastewater	13

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	19/07/2016	First issue with new template (this certificate is linked to CDM qualification)
2	09/10/2017	Qualification update as ITRP

Responsabile di schema
Scheme Leader
Laura SEVERINO

*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/riconosciuto da
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UNFCCC	quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM *as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects*
VCSA	per condurre la Validazione e la Verifica di Progetti VCS *to carry out Validation and Verification of VCS Projects*
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS *to carry out Validation and Verification of GS Projects*
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS *to carry out Validation and Verification of SCS Reports*
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR *to carry out Validation and Verification of ACR projects*
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB *to carry out Validation and Verification of co-benefit CCB projects*