

2nd VERIFICATION REPORT OF SALTO PILÃO HYDROPOWER PLANT PROJECT ACTIVITY

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Summary:

Bureau Veritas Certification has made the 2nd monitoring period verification of the 191.89 MW Salto Pilão Hydropower Plant Project Activity, located between the cities of Lontras, Ibirama and Apiúna, state of Santa Catarina, Southern Region of Brazil.

The verification scope is defined as a periodic independent and objective review and an ex-post determination of the monitored reductions in GHG emissions during defined verification period and consisted of the following three phases: i) desk review of the project design, baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in the Verification Report. Taking into account this output, the project proponent revised its Monitoring Report Document, version 04. In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the "Consolidated baseline methodology for grid connected electricity generation from renewable sources" – ACM0002, version 11, and meets the relevant VCS version 3 requirements and local legislation.

During this verification, 13 Corrective Action Requests (CAR) and 04 Clarification Requests (CL) were raised and successfully closed.

As the result of the 2nd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. Bureau Veritas Certification herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Reporting period: 01-March-2011 to 31-March-2012

PERIOD	EMISSION REDUCTION (tCO ₂ e)
01-March-2011 to 31-December-2011	180,960
01-January-2012 to 31-March-2012	54,582
Total: 01-March-2011 to 31-March-2012	235,542

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1 INTRODUCTION

1.1 Objective

Consórcio Empresarial Salto Pilão has commissioned Bureau Veritas Certification to verify the emission reductions of its VCS “Salto Pilão Hydropower Plant Project Activity”.

This report summarizes the findings of the second periodic verification of the project, performed on the basis of VCS – Verified Carbon Standard version 3 criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Verification is the periodic independent review and ex-post determination of the monitored reductions in GHG emissions during defined verification period.

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore, the periodic verification evaluates the GHG emission reductions data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission data is free of material misstatements; and verifies that the reported GHG emission reductions data is sufficiently supported by evidence, i.e. monitoring records.

The verification shall consider both quantitative and qualitative information on emission reductions.

Quantitative data comprises the monitoring reports submitted to the verifier by the project entity.

Qualitative data comprises information on internal management controls, calculation procedures and procedures for transfer, frequency of emissions reports and review of calculations/data transfers.

The verification is based on criteria set by VCS – Verified Carbon Standard version 3.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the project description, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against VCS – Verified Carbon Standard version 3.

The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

During the verification process, the GHG team assessed the monitoring report, the calculation spreadsheets and supporting documents.

Based on this assessment, the verification team can express a reasonable level of assurance, stating that the GHG emission reductions:

- Are materially correct and are a fair representation of the GHG data, and
- Are prepared in accordance with the relevant International Standard on GHG quantification, monitoring and reporting, and with relevant national standards.

The verification report is based on VCS PD version 06, of 22/06/2010, and other documents provided by the project proponent, as well as, on information obtained from the on-site visit. The verification opinion is assured by the credibility of all the statements above.

1.4 Summary Description of the Project

The project activity consists of the construction of a hydropower plant with two generating units of 95.94 MW each, totalizing an installed capacity of 191.89 MW, with a reservoir of 0.15 km². The plant is located between the cities of Lontas, Ibirama and Apiúna, state of Santa Catarina, Southern Region of Brazil.

The installed capacity of the plant increased from 182.3 MW to 191.89 MW. Therefore, as required by the paragraph 3.6 of the VCS Standard version 3.2, a reassessment of the ACM0002 was conducted by the Project Participant and additionally, an official letter requesting the VCS Team approval of using a monitoring plan deviation to catalogue the modification of the installed capacity to the project was sent on 27-March-2012 and the project participants received the VCS Team approval on 30-March-2012.

The Salto Pilão Hydropower Plant is owned by Consórcio Empresarial Salto Pilão.

The current structure of Consórcio Empresarial Salto Pilão is:

- Companhia Brasileira de Alumínio (CBA) – 60%;
- Companhia Geração de Energia de Pilão (CGEP) – 20%;
- DME Energética Ltda (DMEE) – 20%.

The primary objective of UHESP is to help Brazil meet its rising demand for energy due to economic growth and to improve the supply of electricity, while contributing to environmental (run-of-river power plant), social (job creation about 1000 workers in the construction phase, and infra-structure enhancements in surrounded municipalities) and economical sustainability by increasing the share of renewable energy in the total energy consumption in Brazil and Latin America.

This indigenous and cleaner source of electricity has also an important contribution to environmental sustainability by reducing carbon dioxide emissions that would have occurred otherwise in the absence of the Project. The project activity reduces emissions of greenhouse gas (GHG) by avoiding electricity generation by fossil fuel sources (and CO₂ emissions), which would be generated (and emitted) in its absence.

The emission reductions due to the renewable energy generated and dispatched to the grid by Salto Pilão Hydropower Plant Project Activity resulted in 235,542 tCO₂e, during this 2nd monitoring period, from 01-

March-2011 to 31-March-2012.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

- Method and Criteria

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, VCS rules and associated interpretations. and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow up interviews and on site visit; iii) resolution of outstanding issues and the issuance of the final validation report and opinion.

- Document Review

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

The Project Description Template of the Salto Pilão Hydropower Plant Project Activity was reviewed and compared with the Project Description Template, of 19 November 2007. The methodology used is:

- Approved consolidated baseline and monitoring methodology ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 11;

The documents considered during the validation process that relate directly to the GHG components of the project are listed below:

1. PD Salto Pilão Hydropower Plant Project Activity, version 01, of November 12th, 2009
2. PD Salto Pilão Hydropower Plant Project Activity, version 02, of March 5th, 2010
3. PD Salto Pilão Hydropower Plant Project Activity, version 03, of April 26th, 2010
4. PD Salto Pilão Hydropower Plant Project Activity, version 04, of May 21st, 2010
5. PD Salto Pilão Hydropower Plant Project Activity, version 05, of June 11st, 2010
6. PD Salto Pilão Hydropower Plant Project Activity, version 06, of June 22nd, 2010
7. Calculation Excel Spreadsheets
8. Financial Demonstrations and Calculations
9. Operation License (LO) # 202/2009, issued on 13 July 2009
10. Approved consolidated baseline and monitoring methodology ACM 0002, version11
11. Methodological tool "Tool for the demonstration and assessment of additionality", version 05.2
12. Methodological tool "Tool to calculate the emission factor for an electricity system", version 02
13. Methodological tool "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion",

version 02

14. Methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, version 02.2

15. VCS PD Template from 19 November 2007

16. VCS Validation Report Template from 19 November 2007

17. Voluntary Carbon Standard 2007.1, 18 November 2008

18. Voluntary Carbon Standard Program Guidelines, 18 November 2008

19. Resolução Interministerial 01, Comissão Interministerial de Mudança Global do Clima, September 2003

20. Resolução Interministerial 07, Comissão Interministerial de Mudança Global do Clima, March 2008

21. Kyoto Protocol to the United Nations Framework Convention on Climate Change - United Nations, December 1997

22. ISO 14064-2, June 2006

- Interviews

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

On 16-17 December 2009, Bureau Veritas Certification performed interviews with persons of Consórcio Empresarial Salto Pilão and Ecopart Assessoria em Negócios Empresariais Ltda, related to project specific questions and emission factor.

Persons interviewed were:

From Consórcio Empresarial Salto Pilão: Paulo H. Müller

From Ecopart: Karen M. Nagai

- Site Inspections

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant VCS criteria which are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria.

In this regarding, an on-site assessment was conducted on 16-17 December 2009 by Bureau Veritas Certification Holding SAS.

- Resolution of Any Material Discrepancy

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in the Validation Report, version 02. Taking into account this output, the project proponent revised its project design document, originating the PD version 06, of 22-June-2010.

23 CARs and 25 CL were found during validation. Please refer to Section 3 of the Validation report.

2.2 Validation Findings

2.2.1 Gap Validation

There is no additional project description. All the supporting documents have been listed in Section 5 of the Validation Report.

2.2.2 Methodology Deviations

There have been no methodology deviations.

2.2.3 New Project Activity Instances

Not applicable, once this is not a grouped project.

2.3 Validation Conclusion

According to the Validation Report N° BRAZIL-VAL/05286/2010 Version 02, issued in 23-June-2010, by Bureau Veritas Certification Holding SAS:

Bureau Veritas Certification has performed a validation of the “Salto Pilão” Hydropower Plant Project Activity in Brazil. The validation was performed on the basis of VCS criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases:

- i) A desk review of the project design and the baseline and monitoring plan;
- ii) Follow-up interviews and on site visit;
- iii) The resolution of outstanding issues and the issuance of the final validation report and opinion

Project participants used the latest tool for demonstration of the additionality. In line with this tool, the PD provides analysis of investment to determine that the project activity itself is not the baseline scenario.

By the construction of a hydropower plant with a reservoir of 0.15 km² and an installed capacity of 182.3 MW, the project is likely to result in reductions of GHG emissions partially. An analysis of the investment barrier demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the Project Description (version 01 dated 12-November-2009) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. The Validation Report was based on the Project Description version 06 dated 22-June-2010.

In our opinion, the project correctly applies and meets the relevant VCS requirements and the relevant host country criteria. The validation is based on the information made available to us and the engagement conditions detailed in this report.

3 VERIFICATION PROCESS

3.1 Method and Criteria

This second verification comprises the period from 01-March-2011 to 31-March-2012.

This verification report was prepared between 03-May-2012 and 25-June-2012. This period encompasses the site visit preparation, site visit, preliminary report, final report, internal technical review (ITR) and final report adjustments.

The criteria of this verification include the relevant rules and steps as set out in the VCS version 3.

The verification process includes:

- A desk review of the VCS PD and supporting documents with the use of the relevant sections of a customized protocol according to the VVM 01.2 ;
- A desk review of the Monitoring Report (MR) and additional supporting documents which the client submitted. The relevant sections of the above-mentioned customized protocol according to the VVM 01.2 were used;
- On-Site assessment;
- Background investigation and follow-up interviews with personnel of the project developer;
- Verification reporting (Draft Verification Report and Final Verification Report).

3.2 Document Review

The document review was conducted based in a desk review of the Monitoring Report (MR), calculation spreadsheets and additional supporting documents submitted by the client. The relevant sections of the above-mentioned customized protocol according to the VVM 01.2 were used.

Also the desk review of the VCS PD, supporting documents and methodology ACM0002 version 11 were done by using the relevant sections of a customized protocol according to the VVM 01.2.

All the relevant information and evidences regarding project description and monitoring process were assessed and validated by the verification team during the site visit and documentation review.

Reference Documents:

- PD Salto Pilão Hydropower Plant Project Activity, version 06 from 22-June-2010
- Validation Report N° BRAZIL-VAL/05286/2010, version 02 from 23-June-2010
- 1st VCS Monitoring Report, version 03 from 08-July-2011
- 1st Verification Report, version 03 from 15-July-2011
- 2nd VCS Monitoring Report, version 01 from 10-April-2012
- 2nd VCS Monitoring Report, version 02 from 16-May-2012
- 2nd VCS Monitoring Report, version 03 from 08-June-2012
- 2nd VCS Monitoring Report, version 04 from 26-June-2012
- Excel spreadsheet "Salto Pilão_VERs_2012.04.03_v.01"
- Excel spreadsheet "Salto Pilão_VERs_2012.05.16_v.02"
- Excel spreadsheet "Salto Pilão_VERs_2012.06.25_v.03"
-
- Operation License nr. 202/2009, issued on July 13th, 2009 by the environmental agency of Santa Catarina State (Fundação do Meio Ambiente – FATMA)
- ANEEL Resolution nr. 3303 issued on January 17th, 2012
- ANEEL Resolution nr. 2741 issued on January 25th, 2011
- ANEEL Ordinance nr. 4597 issued on December 10th, 2009
- ANEEL Ordinance nr. 102 issued on January 18th, 2010
- 5th Addendum to the Concession Contract, signed on April 1st, 2011, to formalise the negotiation of 20% in the consortium between Camargo Corrêa Geração de Energia S/A (CCGE) and Companhia Geração de Energia de Pilão (CGEP)
- ONS procedure "Sub-module 12.3 - Maintenance of the metering system for invoicing"
- Letter "Permission to expand installed capacity of Salto Pilão Hydropower Plant" - DILI/GEAIA N° 3313 from 16-September-2011, issued by the environmental agency of Santa Catarina State (Fundação do Meio Ambiente – FATMA)
- CESAP 404/10 from July 30th, 2010 – Semiannual Report n° 02
- CESAP 041/11 from January 31st, 2011 – Semiannual Report n° 03
- CESAP 353/11 from July 29th, 2011 – Semiannual Report n° 04
- CESAP 125/12 from March 9th, 2012 – Renewal of Operational License
- Calibration certificate – Power Plant Principal Meter - PT-0812A276-01
- Calibration certificate – Power Plant Principal Meter - PT-0811A790-01
- Calibration certificate – Substation Principal Meter - PT-0902A536-01
- Calibration certificate – Substation Principal Meter - PT-0903A335-01
- Calibration certificate – Substation Back-up Meter - PT-0903A301-01
- Calibration certificate – Substation Back-up Meter - PT-0903A346-01
- Initial Verification Report – Electronic Measurement Equipments n° 003/2009 – (Relatório de verificação inicial em medidores eletrônicos de Energia Elétrica) – ION 8600 - INMETRO/IPEM – RJ – 08/06/2009
- Salto Pilão_VCS Official letter_2012.02.22_signed
- Salto Pilão_VCS Letter_Monitoring plan deviation_30 March 2012
- Approved consolidated baseline and monitoring methodology ACM0002, version 11
- Methodological tool "Tool for the demonstration and assessment of additionality", version 05.2

- Methodological tool “Tool to calculate the emission factor for an electricity system”, version 02
- Methodological tool “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”, version 02
- Methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, version 02.2
- VCS Monitoring Report Template, version 3
- VCS Verification Report Template, version 3
- VCS Standard, version 3

3.3 Interviews

Background investigation and follow-up interviews with personnel of the project developer were conducted during the site visit on May 09th, 2012.

During the site visit, Bureau Veritas Certification performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

The following representatives of Consórcio Empresarial Salto Pilão and Ecopart Assessoria em Negócios Empresariais Ltda were interviewed:

Consórcio Empresarial Salto Pilão:

- Rubens Habitzreuter - Comunicação Social AHESP
- José Vilson Novack Cantarelli - Operadora – Gerente Geral
- Fernando Pedrassani C. Neves - Operadora – Gerente de O&M
- Clóvis Ollé Fischer Santos - Operadora – Gerente Suporte Técnico
- Tadeu Pimentel da Silva - Operadora – Encarregado
- Paulo Henrique Müller - Consórcio Empresarial Salto Pilão – CESAP

Ecopart Assessoria em Negócios Empresariais Ltda (EQAO):

- Renata O. Freitas - consultant
- Mariana Turibio - consultant

Consultants have been interviewed. The main topics of the interviews were:

- Project Design and implementation;
- Technical Equipment and operation;
- Equipment calibration;
- Monitoring Plan;
- Monitored data;

- Data uncertainty and residual risks;
- GHG Calculation;
- Environmental Impacts;
- Compliance with National Laws and regulations;
- Licenses.

3.4 Site Inspections

On-site assessment was conducted in order to crosscheck all the relevant information and data provided by the PP, against to the physical documentation and registers, as well as to assess the project description, as per the MR and PD, to that observed in the field.

3.5 Resolution of Any Material Discrepancy

During the verification process some corrective action requests (CAR) and clarification requests (CL) identified by the verifier were raised in the verification protocol and submitted to the PP to be addressed before the conclusion of the verification process.

The resolution of CARs and CLs were carried out by the PP through adjustments in the project documentation, especially in the MR and calculus spreadsheet. In some cases this adjustments were supported by evidences, additional documentation or technical explanation.

No FAR was raised in the previous verification.

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) is issued, where:

- (a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- (b) Mistakes have been made in applying assumptions, data or calculations of emission reductions which would impair the estimate of emission reductions.

The Clarification Request (CL) is used if information is insufficient or not clear enough to determine whether the applicable VCS version 3 requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol found in the Section 7, below.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

There are no pending CARs or CLs issued in the course of the verification that still needs to be properly addressed to get closed. Before issuance of the final verification report, these CARs and CLs were adequately answered by the project proponent, and are closed.

The project has a 10-year crediting period, twice renewable.

The first 10-year crediting period is from 19th January 2010 to 18th January 2020. The total Emission Reductions forecasted for that period are 2,908,762 tCO₂e.

This is the second monitoring period, from 01st March 2011 to 31st March 2012, where the emission reductions were calculated in 235,542 tCO₂e.

The previous monitoring period encompassed the period from 19th January 2010 to 28th February 2011, generating 203,408 tCO₂e.

The Salto Pilão Hydropower Plant Project Activity start date is 11th December 2009, that refers to the first generating unit started operation.

Project activity is in commercial operation since 11th December 2009 (first generating unit). The second generating unit started commercial operations on 19th January 2010. The equipment and technology used in UHESP has been successfully applied to similar projects in Brazil and around the world. The amount of net electricity generation in 2010 was 1,006,919 MWh and in 2011 was 1,137,150 MWh.

The Brazilian Electricity Regulatory Agency - ANEEL, has authorized the increase in the installed capacity of the plant (from 182.3 MW to 191.89 MW), through ANEEL Ordinance #3.303, from 17/01/2012. The installed capacity increase was also authorized by FATMA, through the document: "Permission to expand installed capacity of Salto Pilão Hydropower Plant" - DILI/GEAIA Nº 3313

This modification is due to the expansion of the headrace tunnel during the construction period. It causes a decrease in the pressure drop and, consequently, an increase in the net head, allowing the increase of the installed capacity. Additionally, the specifications of the equipments installed in the plant allowed this power increase.

This increase of the installed capacity did not require any equipment modification, retrofit, neither modification in the reservoir area, since the plant became operational. No overhaul times, downtimes of equipment, exchange of equipment has occurred during the monitored period.

Additional, as stated in the section 3.6 of the VCS Standard version 3.2, the PP has correctly required to the VCS team instructions for deviations from the monitoring plan. The VCS team had the same understanding: *"The installed capacity increase is not the result of any modification or retrofit to the*

project activity", then this update was registered in the MR v.4 as a monitoring plan deviation, being in accordance to the VCS requirement. For more details regarding the installed capacity increase and monitoring plan deviation, please refer to item 1.e of the verification protocol, in section 7 of this report.

The monitoring plan is in accordance with the approved methodology applied by the proposed VCS project activity.

The parameters required by the monitoring plan and the way the Verification Team has verified the values in the Monitoring Report Version 03 are described below:

Data Reported in Monitoring

Data Unit / Parameter:	$EG_{\text{facility},y}$
Data unit:	MWh/year
Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y .
Source of data:	Project sponsor and the power utility/CCEE.
Description of measurement methods and procedures to be applied:	Electricity supplied by the project activity to the grid. Double checked by Project Sponsors internal control and sales receipt or documents from the power utility/CCEE. CCEE is a Brazilian government entity, which monitors the electricity on the national interconnected grid.
Frequency of monitoring/recording:	Hourly measurement and monthly recording.
Value monitored:	1,171,440
Monitoring equipment:	There are six energy meters (principal and backup): 2 installed at the power plants and 4 installed at the local substation, which continuously monitor the electricity generated by the plant and delivered to the grid. Their specification is detailed above in section 3.3. As per the information presented above, they are calibrated every two years following the recommendations of the System National Operator. Last calibration of the equipment took place in 2011. In this sense, the calibration is still valid and is due in 2013.
QA/QC procedures to be applied:	The equipments used have by legal requirements extremely low level of uncertainty.
Calculation method:	Not applicable.
Any comment:	-

Data Unit / Parameter:	Cap _{PJ}
Data unit:	W
Description:	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data:	Project site and official data source.
Description of measurement methods and procedures to be applied:	Installed capacity determined by official entities and can be confirmed during on-site visit verifications.
Frequency of monitoring/recording:	Data will be archived in paper format and will be monitored yearly.
Value monitored:	191,890,000
Monitoring equipment:	Not applicable.
QA/QC procedures to be applied:	Determined based on recognized standards with no possibility of uncertainty.
Calculation method:	Not applicable.
Any comment:	A deviation from the Monitoring Plan was applied to the project activity due the increase in the installed capacity of the plant. For more details, please refer to the section 2.2.

Data Unit / 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:	Project site and official data source.
Description of measurement methods and procedures to be applied:	Measured from topographical surveys, maps, satellite pictures, etc. (once at the time of the project conception) and water levels (during the project crediting period).
Frequency of monitoring/recording:	Monthly measurement and recording.
Value monitored:	150,000
Monitoring equipment:	-
QA/QC procedures to be applied:	Determined based on recognized standards with extremely low level of uncertainty.
Calculation method:	Not applicable.
Any comment:	-

Data Unit / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO ₂ /MWh
Description:	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “ <i>Tool to calculate the emission factor for an electricity system</i> ”.
Source of data:	Brazilian DNA (Comissão Interministerial de Mudança Global do Clima – CIMGC). Information available at: http://www.mct.gov.br/index.php/content/view/72764.html .
Description of measurement methods and procedures to be applied:	Since option C) for the calculation of the operating margin was chosen, this value will be up-dated annually according to data from the Brazilian DNA and following the prescription of the emission factor tool.
Frequency of monitoring/recording:	-
Value monitored:	0.2011 for 2011 year
Monitoring equipment:	-
QA/QC procedures to be applied:	Official source of data.
Calculation method:	
Any comment:	-

Data Unit / Parameter:	$EF_{grid,OM,y}$
Data unit:	tCO ₂ /MWh
Description:	Operating Margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “ <i>Tool to calculate the emission factor for an electricity system</i> ”.
Source of data:	Brazilian DNA (Comissão Interministerial de Mudança Global do Clima – CIMGC). Information available at: http://www.mct.gov.br/index.php/content/view/72764.html .
Description of measurement methods and procedures to be applied:	Option C) was chosen to calculate the operating margin. This option does not permit the <i>ex-ante</i> vintage for the calculation of the emission factor.

	Therefore, the emission factor will be calculated ex-post applying the numbers provided by the Brazilian DNA.
Frequency of monitoring/recording:	-
Value monitored:	0.2965 for 2011 year
Monitoring equipment:	-
QA/QC procedures to be applied:	Official source of data.
Calculation method:	-
Any comment:	-

Data Unit / Parameter:	$EF_{grid.BM,y}$
Data unit:	tCO ₂ /MWh
Description:	Build 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".
Source of data:	Brazilian DNA (Comissão Interministerial de Mudança Global do Clima – CIMGC). Information available at: < http://www.mct.gov.br/index.php/content/view/72764.html >.
Description of measurement methods and procedures to be applied:	Option 2 was chosen to calculate the build margin. Therefore, the emission factor will be calculated ex-post applying the numbers provided by the Brazilian DNA. Numbers provided by the Brazilian DNA will be applied during the project verification.
Frequency of monitoring/recording:	-
Value monitored:	0.1056
Monitoring equipment:	
QA/QC procedures to be applied:	Official source of data.
Calculation method:	-
Any comment:	

The DOE crosschecked all the information above, available on the Monitoring Report version 04, with the internal records data related to gross and net electric generation, official national grid emission factor issued by Brazilian DNA (<http://www.mct.gov.br/index.php/content/view/72764.html>), official electric generation report records issued by CCEE.

The net electric generation presented in the VERs calculation spreadsheet in hourly base, was crosschecked by the verification team, against the CCEE hourly registry, by randomly samples. The CCEE hourly registry system was accessed by the PP and presented to the verification team during the site visit. The values used for crosscheck were:

- 14h 09/03/2011 = 158,39788
- 3h 17/05/2011 = 181,410046
- 10h 10/12/2011 = 114,454818
- 1h 8/02/2012 = 189,996522
- 21h 9/10/2011 = 129,747979

Also the "Guidelines for assessing compliance with the calibration frequency requirements", version 01, and ONS Grid Procedures Sub-module 12.3 were analysed in order to assess the correct application of the procedures regarding energy calculation for meters that had their calibration delayed or had been replaced during the verification period.

The monitoring of the project activity is implemented in conformity with the Monitoring Plan described in the VCS PD version 6. Therefore, the monitoring plan was followed properly.

No remaining issues from previous validation or verification were identified.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The parameters used for the emission reduction calculation are: Quantity of net electricity generation supplied by the project plant/unit to the grid ($EG_{\text{facility},y}$), Installed capacity of the hydro power plant after the implementation of the project activity (Cap_{PJ}), Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (A_{PJ}), Combined margin CO_2 emission factor for grid connected power generation ($EF_{\text{grid.CM},y}$), Operating Margin CO_2 emission factor for grid connected power generation ($EF_{\text{grid.OM},y}$) and Build margin CO_2 emission factor for grid connected power generation ($EF_{\text{grid.BM},y}$).

For the first parameter ($EG_{\text{facility},y}$), the electricity supplied by the project activity to the grid is double checked by Project Sponsors internal control and sales receipt or documents from the power utility/CCEE. CCEE is a Brazilian government entity, which monitors the electricity on the national interconnected grid. Hourly measurement and monthly recording.

For the second parameter (Cap_{PJ}), the installed capacity was determined by official entities and can be confirmed during on-site visit verifications. Data is archived in paper format and monitored yearly.

The third parameter (A_{PJ}), was measured from topographical surveys, maps, satellite pictures, etc. (once at the time of the project conception) and water levels (during the project crediting period). Monthly

measurement and recording.

The fourth parameter ($EF_{grid.CM.y}$), this value is up-dated annually according to data from the Brazilian DNA and following the prescription of the emission factor tool, since option C) for the calculation of the operating margin was chosen. The $EF_{grid.CM.y}$ was calculated based in the two below mentioned parameters ($EF_{grid.OM.y}$ and $EF_{grid.BM.y}$), by following the procedures of the “Tool to calculate the emission factor for an electricity system”, for hydropower plants ($W_{OM} = 0.5$ and $W_{BM} = 0.5$).

The fifth parameter ($EF_{grid.OM.y}$), was calculated **ex-post** applying the numbers provided by the Brazilian DNA, since option C) was chosen to calculate the operating margin and this option does not permit the *ex-ante* vintage for the calculation of the emission factor.

The sixth parameter ($EF_{grid.BM.y}$), was calculated **ex-post** applying the numbers provided by the Brazilian DNA, since option 2 was chosen to calculate the build margin. Numbers provided by the Brazilian DNA will be applied during the project verification.

Project sponsor has proceed with the necessary measures for the power control and monitoring. Together with the information produced by both project sponsor and the power utility/Electric Energy Commercialization Chamber (CCEE), it was possible to monitor the power generation of the project (in MWh/year). CCEE makes feasible and regulates the electricity energy commercialization in Brazil.

There are six energy meters (principal and backup) specified by CCEE: 1 principal meter installed at each one of the generating units (total of 2 principal meters), which measure the gross energy, and 4 meters (2 principal meters and 2 backup meters) installed at the local substation, which measure the net energy. CCEE has on-line access to the energy readings from meters located at the substation.

Energy data is measured by the meters in real time. Monthly, consolidations are made for payment purposes. Cross check is made between reports from CCEE/power utility and power plant. However, energy data from meters located at the power plant is higher than data from meters at the substation, considering transmission losses from the power plant to the substation.

According to ONS procedures, these meters have to be calibrated every two years after operation starts. All meters calibration was done by ONS requirements, available at: http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.3_Rev_1.0.pdf.

The last calibration of the principal and back-up meters was conducted by the Progressul engenharia and occurred on 02/06/2011 for the first generation unit and 30/03/2011 for the second generation unit, while the previous calibration of the principal and back-up meters has occurred on June 08th, 2009, as follow:

Table 1: Calibration dates of the energy meters

Description	Location	Number	Calibration Date	Re-calibrated date
-------------	----------	--------	------------------	--------------------

Salto Pilão	Power Plant	Principal	PT-0812A276-01	08/06/2009	02/06/2011
		Principal	PT-0811A790-01	08/06/2009	30/03/2011
	Substation	Principal	PT-0902A536-01	08/06/2009	02/06/2011
		Back-up	PT-0903A301-01	08/06/2009	02/06/2011
		Principal	PT-0903A335-01	08/06/2009	30/03/2011
		Back-up	PT-0903A346-01	08/06/2009	30/03/2011

Therefore, the meters calibrations were made following ONS procedures.

The verification team had access and verified the Calibration Certificates of all the energy measurement equipments.

According to the selected approved methodology ACM0002, the emission reductions for the second monitoring period were calculated as follows:

Emission reductions (ER_y)

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission Reduction in year y (tCO₂e/yr)

BE_y = Baseline emissions in year y (tCO₂e/yr)

PE_y = Project emissions in year y (tCO₂e/yr)

Baseline emissions (BE_y)

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

Where:

BE_y = Baseline emissions in year y (tCO₂/yr)

$EG_{PJ,y}$ = 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 (MWh/yr)

$EF_{grid,CM,y}$ = 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*” (tCO₂/MWh)

For Greenfield projects, as it is the case of the proposed project activity:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

$EG_{PJ,y}$ = 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 (MWh/yr)
 $EG_{\text{facility},y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Project Emissions (PE_y)

If the power density (PD) of the project is greater than 10W/m^2 , $PE_y = 0$

The power density of the project activity is calculated as follows:

$$PD = \text{Cap}_{PJ} - \text{Cap}_{BL} / A_{PJ} - A_{BL}$$

Where:

PD = Power density of the project activity, in 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 reservoir 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 reservoir 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

For Salto Pilão HPP:

Capacity of the project = 191.89 MW

Reservoir area = 0.15 km^2

Power density = $191.89 / 0.15 = 1,279.27\text{ W/m}^2$, so $PE_y = 0$.

Leakage

There is no leakage emissions involved in the project.

The two parameters ($EG_{PJ,y}$ and $EF_{\text{grid},\text{CM},y}$), used to calculate the baseline emission, were crosschecked by the verification team against the official records from CCEE (monthly records) and Brazilian DNA (monthly records) and no discrepancy was found.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The project proponent as evidence to determine emission reductions submitted several documents, as presented in Section 3.2 above.

The evidences were assessed as of sufficient quantity and appropriate quality by DOE.

4.4 Management and Operational System

As presented in the Monitoring Report version 04, Section 3.3:

Salto Pilão Consortium will be responsible for the maintenance of the monitoring equipments, for dealing with possible monitoring data adjustments and uncertainties, for review of reported results/data, for internal audits of GHG project compliance with operational requirements and for corrective actions. Salto Pilão Consortium is also responsible for the project management, as well as for organizing and training of the staff in the appropriate monitoring, measurement and reporting techniques.

In addition, the Brazilian Power Regulatory Agency (ANEEL) can visit the plant to inspect the operation and maintenance of the facility assuring that project sponsors are carrying out the necessary procedures for the project operation.

Furthermore, the PP has explained that "CCEE has on-line access to the energy readings from meters located at the substation. Energy data is measured by the meters in real time. Monthly, consolidations are made for payment purposes. Cross check is made between reports from CCEE/power utility and power plant. However, energy data from meters located at the power plant is higher than data from meters at the substation, considering transmission losses from the power plant to the substation."

The responsibilities and authorities for monitoring and reporting have been found to be in accordance with the monitoring plan, in the registered PD.

5 VERIFICATION CONCLUSION

Consórcio Empresarial Salto Pilão has commissioned Bureau Veritas Certification to carry out the 2nd periodic verification of the Salto Pilão Hydropower Plant Project Activity with regard to the relevant requirements for VCS project activities. The project reduces GHG emissions by supplying clean hydroelectric energy to the Brazilian National Interconnected System (SIN) that in a scenario without the project activity would have been generated by the operation of a grid-connected power plant and by the addition of new generating sources, some of them based in fossil fuel.

This verification covers the period from 01-March-2011 to 31-March-2012.

In the course of the verification, Corrective Action Requests (CAR) and Clarification Requests (CL) were raised and successfully closed. There were 13 CAR and 04 CL raised. No FARs were raised. The verification conclusion is based on the second Monitoring Report (version 4, dated 26-06-2012), the VCS PD (version 6, dated 22-06-2010), Emission Reduction Calculation spreadsheet, version 3 and supporting documents made available to Bureau Veritas Certification by the project participant.

As a result of this verification, the DOE confirms that:

- Bureau Veritas Certification confirms that the project is implemented as planned and described in the Project Description. The monitoring plan is in place and the project is generating GHG emission

reductions. The DOE concludes that all operations of the project are implemented and installed as planned and described as in the validated project description;

- The monitoring plan is in accordance with the applied approved CDM methodology, i.e., ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 11;
- The monitoring system is in place and functional. The project has generated GHG emission reductions.

Bureau Veritas Certification confirms that Monitoring Report version 4 and Emission Reduction Calculation spreadsheet, version 3 are in accordance with the registered monitoring plan and all the calculations were based in reliable monitored data, in the case of non-monitored and pre-defined parameters, has correctly followed the parameters stated in the validated VCS PD, version 6, dated 22-06-2010.

The DOE also confirms that all the data and information used to elaborate this Verification Report are treated confidentially by Bureau Veritas Certification.

Reporting period from 01-March-2011 to 31-March-2012.

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	235,542
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	235,542

6 VERIFIERS' CVS

Bureau Veritas Certification Lead GHG Verifier

Diego Serrano – He is forest engineer graduated at ESALQ/USP, has master degree in Energetic System Planning by UNICAMP (State University of Campinas). His abilities include coordination, elaboration, validation and verification of PDD's in the scopes 1, 4, 13 and 14. He is qualified as Lead Verifier for GHG – Green House Gases projects and ISO 14001:2004.

Bureau Veritas Certification GHG Verifier

Karina Polido - She is graduated in Civil Engineering with experience in management system audits. She is ISO 9001:2008 and ISO 14001:2004 Lead Auditor. Karina is also qualified as Lead Verifier GHG – Green House Gases.

Bureau Veritas Certification Internal Technical Reviewer

Antonio V. Daraya – is graduated in Chemical Engineering with a very large experience in Industrial and Environmental management in several industrial fields. He is ISO 9001:2008, ISO 14001:2004 and OHSAS 18001 Lead Auditor and has also experience in the implementation of Quality and Environmental Management Systems. Antonio is qualified as Lead Verifier GHG – Green House Gases.

7 VCS VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Voluntary Carbon Standard 2007.1

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1 Project implementation in accordance with the registered project document			
a Are all physical features of the proposed VCS project proposed in the registered PD in place?	Yes, all the physical features are in place.	OK	OK
b Have the project participants operated the proposed VCS project as per the registered PD?	Yes, the project participants have operated the project as per the registered VCS PD.	OK	OK
c Was an on-site visit conducted?	Yes, a site visit was conducted on 09/05/2012.	OK	OK
d If not, justify the rationale of the decision.	Not applicable.	OK	OK
e Does the implementation or operation of VCS project conform with the description contained in the registered PD?	No. The Brazilian Electricity Regulatory Agency - <i>ANEEL</i>, authorized the increase in the installed capacity of the plant (from 182.3 MW to 191.89 MW), through ANEEL Ordinance #3.303, from 17/01/2012. This modification is due to the expansion of the headrace tunnel during the construction period. It causes a decrease in the pressure drop and, consequently, an increase in the net head, allowing the increase of the installed capacity. Additionally, the specifications of the equipments installed in	CAR DMC 01 CAR KSP 01 CAR KSP 02	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	the plant allowed this power increase. However, any equipment has been modified or retrofitted since the plant became operational and any equipment modification or retrofit has to be authorized by the Regulatory Agency. Additionally, there was no modification in the reservoir area. No overhaul times, downtimes of equipment, exchange of equipment occurred during the monitored period. Therefore, there were no events or situations that could have impacted the GHG emission reductions and monitoring. CAR DMC 01: The Project installed capacity has been increased from 182.3MW to 191.89MW. This change was informed and accepted by the Brazilian Electricity Regulatory Agency – ANEEL) as well as the VCS team, that required a deviations from the monitoring plan, as stated in the section 3.6 of the VCS Standard version 3.2. The MR v.1 was done according to the VCS requirement, however, no evidences of notification to the environmental agency (FATMA) was provided during the site visit, regarding the installed capacity increasing.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	The project has an LAO – Licença Ambiental de Operação (Operation Environmental License) #202/2009, from 13/07/2009, valid until 13/07/2012. <u>CAR KSP 01:</u> Monitoring Report version 1 from 10/04/2012, front page, excludes the line “Report ID” of the MR template. <u>CAR KSP 02:</u> Monitoring Report version 1 from 10/04/2012, Section 2.1, does not list operating equipments used in UHESP, specially turbines and generators.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
f If not, which are the potential impacts due to these changes?	Please, refer to item 1.e above.	OK	OK
2 Compliance of the monitoring plan with the monitoring methodology			
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed VCS project?	The methodology applicable to this project is ACM0002 – “Consolidated methodology for grid-connected electricity generation from renewable sources”, version 11. The validated monitoring plan is in accordance with the approved methodology applied by the project activity.	OK	OK
b Are there any monitoring aspects of the project that are not specified in the methodology (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	There are not any monitoring aspects of the project activity that are not specified in the methodology. However: CAR KSP 03: In the Monitoring Report version 1 from 10/04/2012, the “Value monitored” from parameter Cap_{PJ} should be corrected according the applicable unit “W”. CAR KSP 04: In the Monitoring Report version 1 from 10/04/2012, the “Value monitored” from parameter A_{PJ} should be corrected according the applicable unit “m²”.	CAR KSP 03 CAR KSP 04	OK
3 Compliance of monitoring with the monitoring plan			
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	CL DMC 01: It is not clear if the periodical environmental reports have been submitted to the environmental agency as required by the operational licence #202/2009.	CL DMC	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
		01	

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
b Have all parameters stated in the monitoring plan, the applied methodology been sufficiently monitored and updated as applicable, including:	-	-	-
i Project emission parameters?	According to section 4.1 of the registered PD, there are not project emissions from fossil fuel consumption and from the operation of geothermal power plants. Also, according to section 4.2 of the Monitoring Report version 1 from 10/04/2012, as the project has a power density of 1,279.27 W/m ² , there are not project emissions due to the water reservoir.	OK	OK
ii Baseline emission parameters?	CAR KSP 05: In the excel spreadsheet "Salto Pilão_VERs_2012.04.03_v.01", plan "Emission Factor", the values to parameter EF_{EL,DD,h} described in the months November 2011, January 2012, February 2012 and March 2012 are not in accordance with the values available by Brazilian DNA. CAR KSP 06: In the excel spreadsheet "Salto Pilão_VERs_2012.04.03_v.01", plan "Emission Factor", the value 0,1404 to parameter EF_{grid,BM,2011} is not correct. This value corresponds to the year 2010. The value for EF_{grid,BM,2011} is already available in the Brazilian DNA website. CAR KSP 07: In the excel spreadsheet "Salto Pilão_VERs_2012.04.03_v.01", plan "CERs", according ACM0002 version 11, the correct unit for the parameter EF_{grid,CM,2011} is tCO₂/MWh (without the "e"). CAR KSP 08: As this is a VCS project, change the name "CERs" to "VERs" in the excel spreadsheet "Salto Pilão_VERs_2012.04.03_v.01", plan "CERs" and in the title of table (column F). CAR KSP 09: In the Monitoring Report version 1 from	CAR KSP 05 CAR KSP 06 CAR KSP 07 CAR KSP 08 CAR KSP 09	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	10/04/2012, Section 4.1, page 15, according ACM0002 version 11, the correct unit for BE _v is tCO ₂ /yr (without the “e”).		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
iii Leakage parameters?	According to the section 4.1 of the registered PD, no leakage emissions are considered.	OK	OK
iv Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?	Yes, the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan.	OK	OK
c Are equipment controlled and calibrated in accordance with the monitoring plan?	Yes. However: CAR DMC 02: During the site visit it was observed that the meter "PT-0903A301-01" was not in the power plant, but in the substation, while the meter "PT-0812A276-01" was not in the substation, but in the power plant. These inconsistencies were presented in the table 3, section 3.3 of the Monitoring Report version 1. CL DMC 02: It is not clear why the calibration certificate of the main meter of UG2 (PT-0903A335-01) did not state the error (%), neither the "ok" for the test done in the parameter "Reativo Indutivo". CL KSP 01: According Monitoring Report version 1 from 10/04/2012, Section 3.3, page 13, there are six energy meters. Please, clarify how many of them are principal and backup. CL KSP 02: In Table 3 of Monitoring Report version 1 from 10/04/2012, please, clarify which are the principal meters and which are the backup meters. CAR KSP 10: In Figure 3 of Monitoring Report version 1 from	CAR DMC 02 CL DMC 02 CL KSP 01 CL KSP 02 CAR	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	10/04/2012, the meters installed at the power plants were not included in the diagram. Furthermore, the diagram shows only 2 meters installed at the local substation.	KSP 10	

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
d Are monitoring results consistently recorded as per approved frequency?	Yes. - The electrical energy produced by the hydropower plant it is hourly measured and monthly recorded. - The Installed capacity was increased by ANEEL through ANEEL Ordinance #3.303, from 17/01/2012, and is confirmed during on-site verification. - The Combined Margin Emission Factor of the grid is calculated annually using the latest version of the "Tool to calculate the emission factor for an electricity system". The Operating Margin and the Build Margin Emission Factors of the Grid, used for the calculation of the Combined Margin Emission Factor of the Grid, are supplied by the Brazilian DNA – Comissão Interministerial de Mudança Global do Clima – CIMGC.	OK	OK
e Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	Yes, they are in accordance with the monitoring plan.	OK	OK
4 Assessment of data and calculation of greenhouse gas emission reductions			
a Is a complete set of data for the specified monitoring period available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the validator shall make the most conservative assumption theoretically possible in finalizing the verification report).	Yes, all the data for the specified monitoring period was available to the DOE. Please, refer to CAR KSP 05 and CAR KSP 06 .	OK	OK
b Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	Yes, the electricity supplied to the Grid has been cross-checked with CCEE reports. CCEE is a Brazilian Government entity which monitors the electricity on the National Interconnected Grid (Electric Energy Commercialization Chamber). The Combined Margin Emission Factor information has been	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	cross-checked in the DNA's website. Please, refer to <u>CAR KSP 05</u> and <u>CAR KSP 06</u> .		
c Have calculations of baseline emissions, proposed project emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	Yes, all the calculations have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.	OK	OK
d Have any assumptions used in emission calculations been justified?	There were no assumptions used in the emission calculations. However: <u>CAR KSP 11:</u> In the Monitoring Report version 1 from 10/04/2012, Section 4.4, page 19, according ACM0002 version 11, the correct unit for Emission Reduction is tCO ₂ e (with the "e").	CAR KSP 11	OK
e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	Yes. However: Please, refer to <u>CAR KSP 05</u> and <u>CAR KSP 06</u> .	OK	OK

Table 2 Resolution of Corrective Action / Forward Action / Clarification Requests

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CAR DMC 01: The Project installed capacity has been increased from 182.3MW to 191.89MW. This change was informed and accepted by the Brazilian Electricity Regulatory Agency – ANEEL) as well as the VCS team, that required a deviations from the monitoring plan, as stated in the section 3.6 of the VCS Standard version 3.2. The MR v.1 was done according to the VCS requirement, however, no evidences of notification to the environmental agency (FATMA) was provided during the site visit, regarding the installed capacity increasing.	1.e	<i>PPs answer 16/05/2012:</i> The environmental agency (FATMA) issued the Official Letter DILI/GEAIA N° 3313 on September 16 th , 2011, which states that the increase in the installed capacity complies with the Operation License LAO N° 202/2009. This Official Letter is attached to this response.	OK, the Official Letter DILI/GEAIA N° 3313 issued by FATMA on September 16 th , 2011, which states that the increase in the installed capacity complies with the Operation License LAO N° 202/2009, was presented to the verifier. CAR DMC 01 is closed
CAR DMC 02: During the site visit it was observed that the meter "PT-0903A301-01" was not in the power plant, but in the substation, while the meter "PT-0812A276-01" was not in the substation, but in the power plant. These inconsistencies were presented in the table 3, section 3.3 of the Monitoring Report version 1.	3.c	<i>PPs answer 16/05/2012:</i> This information was corrected in the table 3, section 3.3 of the Monitoring Report version 2, dated 16/05/2012.	OK, this inconsistency was adjusted in the MR v.2 CAR DMC 02 is closed
CAR KSP 01: Monitoring Report version 1 from 10/04/2012, frontpage, excludes the line	1.e	<i>PPs answer 16/05/2012:</i>	OK, keep the line "Report ID" without fill

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
"Report ID" of the MR template.		The Monitoring Report form was updated to the version 3.1, which contains the line "Report ID" in the frontpage. Please refer to the second version of the MR, dated 16/05/2012.	it. CAR KSP 01 is closed
CAR KSP 02: Monitoring Report version 1 from 10/04/2012, Section 2.1, does not list operating equipments used in UHESP, specially turbines and generators.	1.e	<i>PPs answer 16/05/2012:</i> The specifications and equipments that used in UHESP were included in the section 2.1. Please refer to the second version of the MR, dated 16/05/2012.	OK, the required information was included in the MR v.2 and is according. CAR KSP 02 is closed
CAR KSP 03: In the Monitoring Report version 1 from 10/04/2012, the "Value monitored" from parameter Cap _{PJ} should be corrected according the applicable unit "W".	2.b	<i>PPs answer 16/05/2012:</i> This value was corrected according to the applicable unit. Please refer to the second version of the MR, dated 16/05/2012.	OK, the change in the MR v.2 was done according CAR KSP 03 is closed
CAR KSP 04: In the Monitoring Report version 1 from 10/04/2012, the "Value monitored" from parameter A _{PJ} should be corrected according the applicable unit "m ² ".	2.b	<i>PPs answer 16/05/2012:</i> This value was corrected according to the applicable unit.	The value presented in MR v.2 is not correct, 150,000,000 m ² is thousand times bigger than the real reservoir

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		Please refer to the second version of the MR, dated 16/05/2012. <i>PPs answer 08/06/2012.</i> The value was corrected to 150,000 m². Please refer to the third version of the MR, dated 08/06/2012.	area. BVC 2nd assessment 11/06/2012 OK, the value was corrected in the MR v.3 CAR KSP 04 is closed
CAR KSP 05: In the excel spreadsheet “Salto Pilão_VERs_2012.04.03_v.01”, plan “Emission Factor”, the values to parameter EF_{EL,DD,h} described in the months November 2011, January 2012, February 2012 and March 2012 are not in accordance with the values available by Brazilian DNA.	3.b.ii	<i>PPs answer 16/05/2012:</i> The values to parameter EF_{EL,DD,h} described in the months November 2011, January 2012, February 2012 and March 2012 were corrected in accordance with the values available by Brazilian DNA. Please refer to the second version of the spreadsheet “SaltoPilão_VERs_2012.05.16_v.02.xls”.	OK, the corrections in the spreadsheet v.2 (SaltoPilão_VERs_2012.05.16_v.02.xls), regarding the EF_{EL,DD,h} values, have been done according. CAR KSP 05 is closed

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CAR KSP 06: In the excel spreadsheet “Salto Pilão_VERs_2012.04.03_v.01”, plan “Emission Factor”, the value 0,1404 to parameter $EF_{grid,BM,2011}$ is not correct. This value corresponds to the year 2010. The value for $EF_{grid,BM,2011}$ is already available in the Brazilian DNA website.	3.b.ii	<i>PPs answer 16/05/2012:</i> The value of the parameter $EF_{grid,BM,2011}$ was corrected to the year 2011, as available by the Brazilian DNA. Please refer to the second version of the spreadsheet “SaltoPilão_VERs_2012.05.16_v.02.xls”.	OK, the correction in the spreadsheet v.2 (SaltoPilão_VERs_2012.05.16_v.02.xls), regarding the $EF_{grid,BM,2011}$ value, was done according. CAR KSP 06 is closed
CAR KSP 07: In the excel spreadsheet “Salto Pilão_VERs_2012.04.03_v.01”, plan “CERs”, according ACM0002 version 11, the correct unit for the parameter $EF_{grid,CM,2011}$ is tCO_2/MWh (without the “e”).	3.b.ii	<i>PPs answer 16/05/2012:</i> <i>The unit of</i> the parameter $EF_{grid,CM,2011}$ was corrected to tCO_2/MWh . Please refer to the second version of the spreadsheet “SaltoPilão_VERs_2012.05.16_v.02.xls”.	OK, the change in the spreadsheet v.2 (SaltoPilão_VERs_2012.05.16_v.02.xls), was done according CAR KSP 07 is closed
CAR KSP 08: As this is a VCS project, change the name “CERs” to “VERs” in the excel spreadsheet “Salto Pilão_VERs_2012.04.03_v.01”, plan “CERs” and in the title of table (column F).	3.b.ii	<i>PPs answer 16/05/2012:</i> The name “CERs” was corrected to “VERs” in the excel spreadsheet. Please refer to the second version of the spreadsheet “SaltoPilão_VERs_2012.05.16_v.02.xls”.	OK, the change in the spreadsheet v.2 (SaltoPilão_VERs_2012.05.16_v.02.xls), was done according CAR KSP 08 is closed

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		02.xls".	
CAR KSP 09: In the Monitoring Report version 1 from 10/04/2012, Section 4.1, page 15, according ACM0002 version 11, the correct unit for BE _y is tCO ₂ /yr (without the "e").	3.b.ii	<i>PPs answer 16/05/2012:</i> The unit for BE _y was corrected to tCO ₂ /yr. Please refer to the second version of the MR, dated 16/05/2012.	OK, the correction in the MR v.2 was done according CAR KSP 09 is closed
CAR KSP 10: In Figure 3 of Monitoring Report version 1 from 10/04/2012, the meters installed at the power plants were not included in the diagram. Furthermore, the diagram shows only 2 meters installed at the local substation.	3.c	<i>PPs answer 16/05/2012:</i> The Figure 3 was corrected to include the meters of the power plant and of the substation. Please refer to the second version of the MR, dated 16/05/2012.	OK, the correction in the MR v.2 was done according CAR KSP 10 is closed
CAR KSP 11: In the Monitoring Report version 1 from 10/04/2012, Section 4.4, page 19, according ACM0002 version 11, the correct unit for Emission Reduction is tCO ₂ e (with the "e").	4.d	<i>PPs answer 16/05/2012:</i> The unit for Emission Reduction was corrected to tCO ₂ e. Please refer to the second version of the MR, dated 16/05/2012.	OK, the correction in the MR v.2 was done according CAR KSP 11 is closed
CL DMC 01: It is not clear if the periodical environmental reports have been submitted to the environmental agency as required by the	3.a	<i>PPs answer 16/05/2012:</i> Please, find attached to this	OK, the PP has presented to the verifier the receiving confirmation of FATMA, to

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
operational licence #202/2009.		response the protocol of the environment reports sent to the environmental agency (FATMA).	the environment reports sent by AHE Salto Pilão. CL DMC 01 is closed

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CL DMC 02: It is not clear why the calibration certificate of the main meter of UG2 (PT-0903A335-01) did not state the error (%), neither the "ok" for the test done in the parameter "Reativo Indutivo".	3.c	<i>PPs answer 16/05/2012:</i> The requirements for the calibration of the energy meters are determined by ONS Procedures "Sub-module 12.3 Maintenance of the metering system for invoicing" (in a free translation from the Portuguese "<i>Submódulo 12.3. Manutenção do sistema de medição para faturamento</i>"), as provided in its Annex 1 reproduced below: "(h) The meter calibration must be performed by the comparative method of Wh consumption, with artificial load, single or three phase test, in laboratory or field, with standards traceable to the National Institute of Metrology, Standardization and Industrial Quality - INMETRO. " During the calibration, all the variables available in the meter were	OK, the justification is applicable and was accepted. CL DMC 02 is closed

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		calibrated (kWh, kVAR inductive, capacitive kVAR...). We note that, surpassing the ONS requirements, the calibration tests were performed twice. As required, the calibration report presents the errors and "OK" visa to kWh measurements for the two tests. The test result without the approval of the responsible for the calibration tests of 30 March 2011 corresponds to a second additional reading of the reactive power (kVARh) performed during the test. We note that, although not required, the first reading was held and the result of the reactive power (kVARh) reading was approved by the responsible for the calibration tests.	
CL KSP 01: According Monitoring Report version 1 from 10/04/2012, Section 3.3, page 13, there are six energy meters. Please, clarify how many of them are principal and backup.	3.c	<i>PPs answer 16/05/2012:</i> One principal meter is installed at each one of the generating units (total of 2 principal meters) and four meters (two principal and two backup) are installed at the local	OK, the changes in the MR v.2 were done according CL KSP 01 is closed

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		substation. This information was also included in the second version of the MR, dated 16/05/2012.	
CL KSP 02: In Table 3 of Monitoring Report version 1 from 10/04/2012, please, clarify which are the principal meters and which are the backup meters.	3.c	<i>PPs answer 16/05/2012:</i> This information was included in the Table 3 of the second version of the MR, dated 16/05/2012.	OK, the change in the table 3 of the MR v.2 was done according. CL KSP 02 is closed