

# YOKUSLU – KALKANDERE HYDROELECTRIC POWER PLANT VERIFICATION REPORT

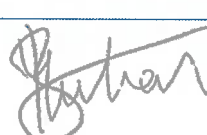
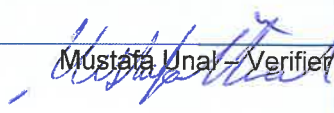
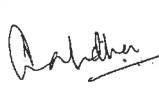


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**Summary:**

Bureau Veritas Certification has made the initial verification of the Yokuslu – Kalkandere Hydroelectric Power Plant project, VCS-VCU project of Akim Enerji Uretim Sanayi ve Ticaret A.S. located in Iyidere River basin, Rize Province, Eastern Black Sea Region of Turkey, and applying the CDM methodology ACM0002 version 12, on the basis of UNFCCC criteria for the CDM when applicable, Verified Carbon Standard v.03, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The Yokuslu - Kalkandere Hydroelectric Power Plant reduces greenhouse gas emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources both in the operating margin and build margin of the system. The average annual emission reductions of the proposed Project for the initial crediting period are estimated to be 97,770 tonnes of CO<sub>2</sub>e (tCO<sub>2</sub>e).

The verification scope is defined as a periodic independent review and ex post determination by the Validation/Verification Body 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 and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and internal technical review followed by 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, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix B.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is already generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the emission reductions verified totally 77,328 tons of CO<sub>2</sub>eq for the monitoring period.

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents.

Reporting period	:	01/01/2011 to 31/12/2011
Baseline emissions	:	77,328 t CO <sub>2</sub> equivalents.
Project emissions	:	0 t CO <sub>2</sub> equivalents.
Leakage emissions	:	0 t CO <sub>2</sub> equivalents.
Emission Reductions	:	77,328 t CO <sub>2</sub> equivalents



**Table of Contents**

1 Introduction ..... 4

    1.1 Objective ..... 4

    1.2 Scope and Criteria ..... 4

    1.3 Level of assurance ..... 4

    1.4 Summary Description of the Project ..... 5

2 Validation Process, Findings and Conclusion ..... 6

    2.1 Validation Process ..... 6

    2.2 Validation Findings ..... 6

        2.2.1 Gap Validation ..... 6

        2.2.2 Methodology Deviations ..... 6

        2.2.3 New Project Activity Instances ..... 6

    2.3 Validation Conclusion ..... 6

3 Verification Process ..... 7

    3.1 Method and Criteria ..... 7

    3.2 Document Review ..... 7

    3.3 Interviews ..... 8

    3.4 Site Inspections ..... 8

    3.5 Resolution of Any Material Discrepancy ..... **8**

4 Verification Findings ..... **10**

    4.1 Project Implementation Status ..... **10**

    4.2 Accuracy of GHG Emission Reduction or Removal Calculations ..... **12**

    4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals ..... **15**

    4.4 Management and Operational System ..... **15**

5 Verification conclusion ..... **16**

APPENDICES ..... 18

## 1 INTRODUCTION

### 1.1 Objective

Akim Enerji Uretimi Sanayi ve Ticaret A.S. (AKIM) has commissioned Bureau Veritas Certification to verify the emissions reductions of its VCS-VCU project Yokuslu – Kalkandere Hydroelectric Power Plant (hereafter called “the project”) at Iyidere River basin, Rize Province, Eastern Black Sea Region of Turkey.

This report summarizes the findings of the verification of the project, performed on the basis of UNFCCC CDM Methodology ACM0002 v.12 criteria, Verified Carbon Standard (VCS) v.03, as well as criteria given to provide for consistent project operations, monitoring and reporting.

In carrying out its verification work, the Validation/Verification Body (VVB) shall ensure that the project activity complies with the requirements of paragraph 62 of the CDM modalities and procedures.

Based on the applicable requirements of paragraph 62 of the CDM modalities and procedures, this assessment shall:

- (a) Ensure that the project activity has been implemented and operated as per the registered VCS-PD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- (b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of VCUs and verifiable and in accordance with applicable CDM Methodology and VCS v.03 requirements;
- (c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- (d) Evaluate the data recorded and stored as per the monitoring methodology.

### 1.2 Scope and Criteria

The verification 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 UNFCCC CDM Methodology ACM0002 v.12, VCS v.03 requirements, rules and associated interpretations.

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

### 1.3 Level of assurance

The level of assurance of the Verification Report is defined as high.

### 1.4 Summary Description of the Project

The Yokuslu-Kalkandere Hydroelectric Power Plant is the implementation of a weir and two hydroelectric power plants on the Iyidere River, Rize, Turkey.

Project design involves the generation of electricity by utilizing the 100.2 m of head available at location with 3 horizontal axis Francis type turbines with 11.68 MWe capacities each, in Kalkandere Powerhouse and 3 vertical axis Kaplan type turbines with 2.43 MWe capacities each, in Kizilagac Powerhouse. Kizilagac Powerhouse is still under construction and is irrelevant in this monitoring period since not operational. Further details regarding the technical aspects of the project design can be seen below, as given in the VCS-PD v.08 of the project.

Table 1: Technical specifications of the project elements

Property	Unit	Amount
<b>Weir</b>		
Catchment Area	km <sup>2</sup>	881.70
Average Discharge	m <sup>3</sup> /s	29.52
Design Discharge	m <sup>3</sup> /s	50.00
Regulator Crest Elevation	m	220.00
Regulator Thalweg Elevation	m	214.00
Flood Water Level	m	224.92
<b>Headrace Tunnel</b>		
Type		Circular, concrete lined pressure tunnel
Inner Diameter	m	4.00
Thickness of Concrete	m	0.40
Tunnel Capacity	m <sup>3</sup> /s	50.00
Headrace Tunnel Length	m	6,806.00
<b>Penstock</b>		
Inner Diameter	m	3.60
Average Steel Thickness	mm	15.50
Length	m	199.85
<b>Powerhouse (Kalkandere)</b>		
Length	m	46.00
Width	m	17.40
Project Discharge	m <sup>3</sup> /s	50.00
Tailrace Elevation	m	119.00
Turbine Axis Level	m	117.50
Turbine Type		Horizontal Axis Francis
Gross Head	m	100.20
Net Head	m	76.09
Installed Capacity	MW <sub>e</sub>	35.04
Unit Capacity	MW <sub>e</sub>	11.68
Number of Units		3

The main purpose of the project is to generate approximately 179,050 MWh/year of electricity to supply the national grid using a renewable resource and tapping the significant hydropower potential in the region. The project activity reduces greenhouse gases (GHGs) emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources. The average annual emission reductions of the proposed Project for the initial crediting period are estimated to be 100,089 tons of CO<sub>2</sub>e (tCO<sub>2</sub>e).

## 2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

### 2.1 Validation Process

Please refer to the project VCS Validation Report "Validation Report of 'The Yokuslu - Kalkandere Hydroelectric Power Plant'", rev.03, dd. 08/08/2011 by Bureau Veritas Certification.

### 2.2 Validation Findings

#### 2.2.1 Gap Validation

N/A

#### 2.2.2 Methodology Deviations

There are no deviations from the applied project methodology, ACM0002 v.12.

#### 2.2.3 New Project Activity Instances

Project is not a grouped project, hence N/A.

### 2.3 Validation Conclusion

Bureau Veritas Certification has made the validation of "The Yokuslu- Kalkandere Hydroelectric Power Plant". The validation has been 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.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the VCS-PD provides analysis of prevailing barriers to determine that the project activity itself is not the baseline scenario. By generating electricity using renewable energy, the project is seen to be likely to result in reductions of GHG emissions partially displacing the electricity that would have been generated using fossil fuels. An analysis of the investment barrier and investment analysis 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 found to be likely to achieve the estimated amount of emission reductions. The review of the Project Description (Version 01 dated 19.07.2010 until Version 08 dated 05.08.2011), the site visit and the subsequent follow-up interviews (please see the list of the persons interviewed under section 5.2 of the validation report) have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. The Project Description was subsequently revised as Version 08 dated 05 August 2011 to resolve the issues that have risen during the interviews and subsequent interactions.

In Bureau Veritas Certification's (BVC) opinion, the project correctly applies and meets the relevant VCS requirements and the relevant host country criteria. The validation has been based on the information made available to BVC and the engagement conditions detailed in the validation report.

### 3 VERIFICATION PROCESS

#### 3.1 Method and Criteria

The verification scope is defined as a periodic independent review and ex post determination by the Validation/Verification Body 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 and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and internal technical review followed by 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.

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a VCS-VCU project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix B to this report.

#### 3.2 Document Review

The verification of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to the VVB. Qualitative information comprises information on internal management controls, calculation procedures, and procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

In addition to the monitoring documentation provided by the project participants, the VVB reviews:

- (a) The VCS-PD (v.08), including the monitoring plan and the corresponding validation report;
- (b) Previous verification reports, if any;
- (c) Previous monitoring reports, if any;
- (d) The revised monitoring plan, if any, and its impact on the current verification;
- (e) The applied monitoring methodology;
- (d) Relevant decisions, clarifications and guidance from the VCS, CMP and the CDM Executive Board;

(e) Any other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).

A compilation of the documents related to the verification activities have been compiled under Appendix A.

### 3.3 Interviews

Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of AKIM and GAIA Finansal Danismanlik Hizmetleri Tic. Ltd. Sti. (GAIA), the consultant for the PP, were interviewed. A list of individuals that were interviewed is presented under Appendix A. The main topics of the interviews are summarized in Table 2.

Table 2 Interview topics

Interviewed organization	Interview topics
AKIM	<ul style="list-style-type: none"> <li>➤ Implementation and aspects of monitoring plan</li> <li>➤ Technical Information About the Project</li> <li>➤ Activities during the monitoring period</li> <li>➤ Monitored values</li> </ul>
AKIM (local employees)	<ul style="list-style-type: none"> <li>➤ Local impacts of the Project</li> <li>➤ Project implementation</li> </ul>
GAIA	<ul style="list-style-type: none"> <li>➤ Emission Reduction Calculations</li> <li>➤ Monitoring Report</li> <li>➤ All CAR's and CL's</li> <li>➤ Document review issues</li> </ul>

### 3.4 Site Inspections

An on-site inspection has been performed on 21/03/2012, with the participation of VVB, AKIM and GAIA representatives. Interviews, inspections and document review have been performed during the site visit to verify the implementation status of the project, implementation of the monitoring methodology and the information flow for monitoring during the monitoring period. Project activities' compliance with the relevant legal regulations (health and safety practices, proper waste management, minimum water release practices, etc.) was also inspected through observations and document review. Records and evidences of monitoring activities were reviewed with AKIM and GAIA representatives to ensure authenticity and completeness of documentation/records provided.

### 3.5 Resolution of Any Material Discrepancy

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 will impair the estimate of emission reductions;
- (c) Issues identified in a FAR during validation or previous verifications to be verified during verification have not been resolved by the project participants.

Forward Action Requests (FAR) are issued, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix B.

The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the project activity. The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that:

The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Verification Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized verification report is accepted for further processing.

## 4 VERIFICATION FINDINGS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix B.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 09 Corrective Action Requests, 11 Clarification Requests, and 0 Forward Action Requests.

The CARs, CLs and FARs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the CDM VVM paragraph.

### 4.1 Project Implementation Status

The project has been implemented in accordance with the project design document that was validated, except for the minor deviations reported below. The construction of the project started on 02.01.2009. The first unit of "Kalkandere Power House" started operation on 30 December 2011. The other two units were commissioned on 28 January 2011. "Kizilgac Powerhouse" was still under construction and not commissioned during this monitoring period. It is expected to be commissioned on 15/09/2012. Information provided in the Monitoring Report (MR) v.04 is in accordance with that stated in the validated VCS-PD v.08. Implementation status of the project structures and equipment was also verified through the Provisional Acceptance Protocol, prepared after the commissioning of all three units of the Kalkandere Powerhouse, dd. 28/01/2011.

No emergencies were reported during the monitoring period. As described in the VCS-PD, calibration and maintenance responsibility for the electricity meters that are the primary source of monitoring for the fundamental parameter to be monitored belong to TEIAS. The PP is responsible to notify TEIAS in case differences in the main and backup meters are observed while TEIAS also monitors this point. No erroneous measurements have been reported; therefore no calibration or maintenance was required for the monitoring equipment. Realized values of generation are close to the estimated values.

The monitoring plan is in accordance with the approved methodology applied by the proposed VCS-VCU project activity. However certain deviations from the validated monitoring plan was observed and reported. None have any impact on the implementation of the applied methodology or on the ability of the monitoring plan to successfully monitor the emission reductions. Deviations, as reported in the MR v.04, are:

- Monthly Meter Reading Protocols that are to be signed by both parties have been determined as the source to cross-check PMUM records for the verification of the "Quantity of net electricity generation supplied by the project plant/unit to the grid in year y" parameter. However as mentioned in the validated VCS Validation report, TEAS has been migrating to remote reading arrangements and such signed protocols are now obsolete. Instead, during the monitoring period, TEIAS has been reading meters electronically on site and reporting results to the PP representatives through emails containing "OSF Forms". Verification of this change in the reading and reporting method of generation values had created the only **FAR** in the validation report of the project. This **FAR** has been closed as the migration to remote reading has been mandatory, completed and reported. No risk related to the project monitoring plan's ability to accurately monitor and report *Quantity of net electricity generation supplied by the project plant/unit to the grid in year y* was identified.
- Validated VCS-PD indicates trainings for the plant electrical engineers on topics of monitoring and verification aspects. This has not been implemented since all measurement, recording, adjustment, calibration responsibility and authority belongs exclusively to TEIAS and hence the mentioned trainings are redundant. This deviation has no effect on the implementation of the monitoring methodology and its ability to determine and report emission reductions correctly.

CAR02 has been raised to ensure that emergency status for the project was clearly stated in the MR. CAR03 was raised to ensure that the monitoring practices are reported, as implemented under section 3.3 of the MR. CAR06 has been raised to ensure that all deviations from the validated VCS-PD are indicated in the MR. All corrective action requests were closed as GAIA performed necessary revisions in the MR, iterating revision to 04.

The parameters required by the monitoring plan and the way the Verification Team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values in the monitoring reports are described below:

(a) Parameter  $EG_{\text{facility},y}$  – Models, specifications and serial numbers of the main and backup meters identified as the monitoring equipment for the parameter have been verified and found to be as indicated in the validated VCS-PD and VCS-MR. PMUM (Market Financial Settlement Center) records have been the source of monitoring for this parameter. The PP can access PMUM data online through a login and password provided exclusively to them by PMUM. PMUM screens clearly depict all energy generation and consumption values, on a daily basis as well as monthly totals. Net generation values were reached by subtracting the consumption of the plant from the gross amount of electricity supplied to the grid. Values reported on these screens have been cross-checked with the monthly reading records of TEIAS, submitted to AKIM in OSF Forms, through e-mails from the district representatives of TEIAS. Original mails have been seen by the verification team and OSF forms were verified on site. Samples of the mails, all OSF Forms and PMUM screens have also been kept for record keeping. As indicated earlier no maintenance, calibration activities by TEIAS was performed, during the monitoring period.

Based on the records, GAIA has prepared a spreadsheet to report the generation values and performed the emission reduction calculations. Reported amount of total net electricity generated in the monitoring period is indicated as 138,333.67 MWh for 2011.

(b) Parameter  $Cap_{PJ}$  – Total installed capacity of the project is 42.33 MWe, as indicated by the project license. However, since Kizilgac Powerhouse has not been commissioned in the duration of this initial monitoring period, the applicable installed capacity of the hydro power plant after the implementation of only the Kalkandere Powerhouse is  $3 \times 11.68$ : 35.04 MWe. Equipment and their capacities have been verified on site through the equipment placards. No changes were made to the equipment or their capacities.

(c) Parameter  $A_{PJ}$  – Area of the regulation reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full has been determined through the topographical drawings and 3D models, assuming a water height equivalent to the theoretical design maximum of the weir i.e. Q500 flood discharge level, 224.92 m altitude. Actual water level was lower than this value (observed by the verification team as 218 m from the SCADA systems of the power plant) hence the resulting area value is fairly conservative. Visual inspections on the reservoir area as well as interviews indicated no change in the physicality of the weir or reservoir boundaries.

Project is compliant with the laws and regulations applicable to it. Minimum amount of water released to the river bed at all times to protect the local flora and fauna is monitored through an AGI (Flow Observation Station) that is controlled and monitored by DSI (State Hydraulic Works). AKIM's compliance was verified through sampled AGI reports. AKIM complies with other applicable regulations on topics such as water quality, air quality and noise pollution (monitored through measurements performed by third party), waste management (receipts of lawful disposal from authorized waste collectors), social security of workers (SGK records), health and safety implementations (EKAT certificates and availability of protection equipment) as verified by sampling through relevant records.

## 4.2 Accuracy of GHG Emission Reduction or Removal Calculations

In line with the applied methodology the baseline emission are calculated according to:

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

Where:

$BE_y$	Baseline emissions in year y (tCO <sub>2</sub> )
$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr)
$EF_{grid, CM, y}$	Combined margin CO <sub>2</sub> 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"
y	Refers to a given year

Emission reductions for the project have been calculated in line with the requirements of the applied methodology ACM0002 v.12:

$$BE_{2011} = EG_{PJ,2011} \times EF_{grid, CM, 2011} = 138,333 \text{ MWh} \times 0.559 \text{ tCO}_2/\text{MWh}$$

$$BE_{2011} = 77,328 \text{ tCO}_2$$

In line with the applied methodology the project emission are assumed to be 0 since the power density of the project is greater than 10 W/m<sup>2</sup> as the methodology dictates. Power density has been calculated according to:

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

Where:

- PD = Power density of the project activity, in W/m<sup>2</sup>
  - Cap<sub>PJ</sub> = Installed capacity of the hydro power plant after the implementation of the project activity (W)
  - Cap<sub>BL</sub> = 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<sub>PJ</sub> = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m<sup>2</sup>)
  - A<sub>BL</sub> = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m<sup>2</sup>). For new reservoirs, this value is zero
- Cap<sub>PJ</sub> = 42,330,000 W  
 Cap<sub>BL</sub> = 0 (Justification: The project is a new hydro power plant)  
 A<sub>PJ</sub> = 11,442 m<sup>2</sup> (Reservoir area for 224.92 m altitude – Q500)  
 A<sub>BL</sub> = 0 (Justification: The project is a new hydro power plant)

Therefore;

$$PD = (42,330,000 - 0) / (11,442 - 0) = 3,700 \text{ W/m}^2 > 10, \text{ hence:}$$

**PE<sub>2011</sub> = 0 tCO<sub>2</sub>/year**

In line with the guidance of the applied methodology no leakage emissions were considered,

**LE<sub>2011</sub> = 0 tCO<sub>2</sub>**

Also, according to ACM0002/Version 12 the emission reductions in year y should be calculated as the following formula

$$ER_y = BE_y - PE_y - LE_y$$

Where:

- ER<sub>y</sub> = Emission reductions in year y (t CO<sub>2</sub>e/yr)
- BE<sub>y</sub> = Baseline emissions in year y (t CO<sub>2</sub>e /yr)
- PE<sub>y</sub> = Project emissions in year y (t CO<sub>2</sub>/yr)
- LE<sub>y</sub> = Leakage emissions in year y (t CO<sub>2</sub>/yr)

Since PE<sub>y</sub> and LE<sub>y</sub> are assumed to be 0, emission reductions are equal to baseline emissions.

**ER<sub>2011</sub> = BE<sub>2011</sub>**

**ER<sub>2011</sub> = 77,328 tCO<sub>2</sub>**

**(Emission reductions generated during the initial monitoring period 01/01/2011 – 31/12/2011)**

The data monitored during the monitoring period is summarized in below:

Table 3 Electricity Generated and Emission Reductions achieved by project.



Kalkandere HEPP Emission Reductions - 2011				
Date	Net Electricity Generation (kWh)	Electricity Traction from Grid (kWh)	Net Electricity Supplied to the Grid (kWh)	Emission Reductions (tCO2)
Jan-11	2,050,950	34,790	2,016,160	1,127
Feb-11	5,214,530	15,830	5,198,700	2,906
Mar-11	8,967,470	10,770	8,956,700	5,007
Apr-11	19,007,170	740	19,006,430	10,625
May-11	26,031,840	1,370	26,030,470	14,551
Jun-11	24,453,030	510	24,452,520	13,669
Jul-11	12,635,430	2,260	12,633,170	7,062
Aug-11	7,380,920	10,850	7,370,070	4,120
Sep-11	6,608,880	16,910	6,591,970	3,685
Oct-11	12,659,880	2,620	12,657,260	7,075
Nov-11	7,872,750	12,480	7,860,270	4,394
Dec-11	5,581,950	22,000	5,559,950	3,108
<b>Total</b>	<b>138,464,800</b>	<b>131,130</b>	<b>138,333,670</b>	<b>77,328.52</b>

### 4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

A complete set of data for the specified monitoring period for all of the monitored parameters was available for verification.

Regarding ex-post monitored parameters:

- $EG_{\text{facility},y}$  : Monitored by approved, sealed equipment that are in line with the validated VCS-PD (ACTARIS SL7000 series with S/Ns: 53087889 – 53087890). All QA/QC procedures relevant have been adhered to and no events related to the equipment were identified or reported. No discrepancies between the readings of the two meters were observed by the verification team, during the site-visit. The meters were purchased for the project and the supplier company (ACTARIS) commits that these meters fully conforms or exceeds all relevant IEC standards including those dealing with electronic metering equipment IEC61036 for class 1 equipment and IEC60687 for class 0.2S accuracy equipment. There is no possibility for human error in the measurement of the electricity as it was performed by dedicated TEIAS technicians using appropriate equipment. All the measurements and calculations are done via tested meters under TEIAS responsibility. Meter readings are continuously monitored by TEIAS and plant personnel for any discrepancies. All records produced (OSF Forms, PMUM screens) are official and final with regards to the values identified. Calculations based on values acquired from and cross-checked by these sources were checked by the verification team and found to be correct and conservative.
- $Cap_{PJ}$  : Verified on-site, through the equipment placards and cross-checked with the project EMRA generation license and Provisional Acceptance Protocol (dd.28/01/2011) against manual errors. No discrepancies were observed.
- $A_{PJ}$  : Verified through the topographical drawings of the project and cross-checked with a 3D model of the reservoir area. Resulting value is based on the theoretical maximum water level that the weir is designed to hold hence it is highly conservative compared to the actual situation.

Only other relevant parameter for the emission reduction calculations is the ex-ante fixed grid combined emission factor determined in the validated VCS-PD and valid for the duration of the entire crediting period. Value indicated in the VCS-MR v.04 and used in the calculations by GAIA is 0.559 tCO<sub>2</sub>/MWh and is in line with the validated value from the VCS-PD v.08.

### 4.4 Management and Operational System

Management system and monitoring responsibilities are in line with the implementation described in the validated VCS-PD and the VCS-MR v.04 and it is the verification team's opinion that it is suitable as well as capable of successfully monitoring the parameters set forth by the monitoring plan and emission reductions.

## 5 VERIFICATION CONCLUSION

Bureau Veritas Certification has performed the initial verification of the Yokuslu – Kalkandere Hydroelectric Power Plant Project in Turkey, which applies the methodology ACM0002 version 12. The verification was performed based on the requirements set by the VCS v.03, CDM Methodology and relevant guidance provided by CMP and the CDM Executive Board.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the internal technical review followed by the issuance of the final verification report and opinion.

The management of Akim Enerji Uretimi Sanayi ve Ticaret A.S. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the validated VCS-PD. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the VCS Monitoring Report version 04 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as described in validated project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and validated project baseline and monitoring, and its associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms the following statement:

Reporting period: From 01/01/2011 to 31/12/2011

GHG Emission Reductions or Removals	tCO <sub>2</sub> e
Baseline Emissions	77,328
Project Emissions	0
Leakage	0
<b>Net GHG emission reductions or removals</b>	<b>77,328</b>

**A.1.** Documents provided by AKIM & GAIA that relates directly to the GHG components of the project and other reference documents are given below:

- a) VCS PD ver.08, dd. 05/08/2011;
- b) Validation Report of "The Yukuslu-Kalkandere Hydroelectric Power Plant", Rev.03, dd. 08/08/2011;
- c) VCS MR ver.01, dd. 20/02/2012;
- d) VCS MR ver.02, dd. 20/04/2012;
- e) VCS MR ver.03, dd. 18/05/2012;
- f) VCS MR ver.04, dd. 21/05/2012;
- g) Kalkandere Verification (01/01/2012-31/12/2012) ER Calculation Excel Workbook;
- h) PMUM screens for 01/01/2012-31/12/2012;
- i) OSF Forms for 01/01/2012-31/12/2012;
- j) Ministry of Energy and Natural Resources Provisional Acceptance Protocol, dd. 28/01/2011;
- k) Energy Market Regulatory Authority Generation License, # EU/915-2/719, dd. 14/09/2006;
- l) Reservoir area topographical drawing and dwg model;
- m) # 53-399 AGI Station data, # 61-339 AGI station data;
- n) Dokay Muhendislik Noise Analysis, # DKL-11/G246, dd. 19/02/2011; #DKL-11/G269, dd. 23/05/2011; #DKL-11/G297, dd. 27/08/2011; # DKL-11/G325, dd. 16/11/2011.  
Dokay Muhendislik Water Analysis, #DKL-11/S2733, dd. 26/05/2011; # DKL-11/S2921, dd. 28/09/2011;  
Dokay Muhendislik Air Analysis, # DKL-11/H564, dd. 23/05/2011; # DKL-11/H591, dd. 27/08/2011
- o) CDM Validation Verification Manual v.01.2;
- p) CDM Methodology ACM0002, v12;
- q) Verified Carbon Standard v.03 Program Guide and Standard.

**A.2.** List persons interviewed during the verification and site visit, or persons that contributed with other information that are not included in the documents listed above.

- a) Serkan DUNDAR – GAIA Carbon Finance;
- b) Taner SENGONUL – SANKO HEPP Investment Assistant Coordinator;
- c) Ismail Hakki ABALI – Plant Manager,
- d) Zafer OZER – Powerhouse operator, local;
- e) Kamil CIHATSARI – Plant Engineer;
- f) Ibrahim DURNA – Plant Engineer, local.

**A.3. Verification Team:**

**Internal Technical Reviewer: H.B. Muralidhar**

Bureau Veritas Certification Internal Technical Reviewer

**Lead Verifier: Mrs. Burcu Mutman – Environmental Engineer**

Bureau Veritas Certification SAS – Lead Verifier

Burcu Mutman is an auditor for environment, safety and quality management systems. She is also lead verifier for GHG Emission Reduction Projects.

**Verifier: Mr. Mustafa Unal – Metallurgical and Materials Engineer**

Bureau Veritas Certification - Verifier

Mustafa Unal is a Metallurgical and Materials Engineer and an auditor for environment, safety and quality management systems. He has worked in automotive and civil aviation industries. He has participated online seminars in the Gold Standard Academy in 2011 and is a CDM Verifier.

**APPENDIX B:**

VERIFICATION PROTOCOL (revision 06)

**Table 1** Verification requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<b>1 Compliance of the monitoring report with the guidelines for completing the monitoring report form</b>					
<b>a Brief description of the project activity</b>					
a. Is the description of the project activity to be presented in this section a brief summary of the detailed description given in the section .B.1 Implementation status of the project activity?	EB 54	Ann 34	Yokuslu-Kalkandere HEPP (Kalkandere HEPP) consists of a greenfield weir and two powerplants, of which only one, Kalkandere is commissioned yet, with installed capacity of 35.04 MWe, while the final total capacity is to be 42.33 MWe. Estimated annual total generation is 179,050 MWh and the estimated annual emission reductions are 100,89 tCO <sub>2</sub> e.	OK	OK
b. Does this description include:	EB 54	Ann 34			
i. Purpose of the project activity and the measures taken to reduce greenhouse gas emissions?	EB	Ann 34	The purpose of the project is stated as "to generate approximately 179,050 MWh/year of electricity to supply the national grid using a renewable resource	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	54		<p><i>and tapping the significant hydropower potential in the region.</i></p> <p><i>"The project activity reduces greenhouse gases (GHGs) emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources."</i></p>		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Brief description of the installed technology and equipments;	EB 54	Ann 34	Please revise description to include brief information about the technology and equipments installed.	CL01	OK
iii. Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)?	EB 54	Ann 34	Please include a project timeline to show justifiable important dates of the project activity.	CL02	OK
iv. Total emission reductions achieved in this monitoring period?	EB 54	Ann 34	Total emission reductions for the monitoring period are given as 77,328.52 tCO2e.	OK	OK
<b>b Project participants</b>					
a. Are the project participants listed?	EB 54	Ann 34	Project participants were given under section 1.3 of the Monitoring Report (MR):  AKIM ENERJİ ÜRETİMİ SANAYİ VE TİCARET A.Ş.	OK	OK
<b>c Location of project activity</b>					
a. Is complete information of the location of the project activity: town, city, country and GPS coordinates provided?	EB	Ann 34	Project is located in Turkey, Rize province and coordinates for the powerhouse have been given.	CL03	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	54		<ol style="list-style-type: none"> <li>1. Please indicate the name(s) of related village(s), town(s), municipalitie(s);</li> <li>2. Please remove the coordinates of the Kizilagac powerhouse since it is not relevant to the monitoring period.</li> </ol>		

BR

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<b>d</b> <i>Technical description of the project</i>					
a. Are a description of the technology applied in the project activity and detailed technical process, including diagrams provided?	EB 54	Ann 34	Please see CL01	CL01	OK
<b>e</b> <i>Title, reference and version of the baseline and monitoring methodology applied to the project activity</i>					
a. Are the complete reference of the methodology applied and tools whenever is applicable included?	EB 54	Ann 34	The referred applicable methodology and tools are given under section 1.8 of the MR as: <ul style="list-style-type: none"> <li>• "ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources, Version 12"</li> <li>• "Tool to calculate the emission factor for an electricity system, Version 02"</li> </ul>	OK	OK
<b>f</b> <i>Registration date of the project activity</i>					
a. Is the registration date of the project activity provided?	EB 54	Ann 34	Please see CL02	CL02	OK
<b>g</b> <i>Crediting period of the project activity and related information (start date and choice of crediting period)</i>					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a Does the description also include changes to the start date of the crediting period post-registration that have been accepted by the Board, when applicable?	EB 54	Ann 34	N/A	OK	OK
			Please also indicate the total number of years in the crediting period.	CL04	OK
<b>h Name of responsible person(s)/entity(ies)</b>					
a Is the contact information of the person(s)/entity(ies) responsible for completing the monitoring report form (CDM-MR) provided?	EB 54	Ann 34	Contact information for GAIA CARBON FINANCE was provided on the cover page of the MR.	OK	OK
<b>i Implementation status of the project activity</b>					
a Does this section include a description of the implementation and operational status of the project as of this monitoring period in accordance with the latest version of the CDM Validation and Verification Manual (CDM-VVM)?	EB 54	Ann 34	Please indicate any information regarding the operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring.	CAR02	OK
b Does the description include inter alia:	EB 54	Ann 34			
i The starting date of operation of the project activity? For project activities that consist of more	EB	Ann	Starting date for the project was given as the start date of the construction: 02/01/2009. The first unit	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
than one site, the report shall clearly describe the status of implementation and starting date of operation for each site. For CDM project activities with phased implementation, the report shall indicate the progress of the proposed CDM project activity achieved in each phase.	54	34	of "Kalkandere Power House" started operation on 30 December 2011. The other two units were commissioned on 28 January 2011. The "Kizilagac Power House" has not commissioned yet. The construction works still continue.		
ii The information regarding the actual operation of the project activity during this monitoring period, including information on special events, for example overhaul times, downtimes of equipment, exchange of equipment, etc?	EB 54	Ann 34	Please see CAR02	CAR02	OK
iii A brief description of: (i) events or situations that occurred during the monitoring period, which may impact the applicability of the methodology, and (ii) how the issues resulting from these events or situations are being addressed?	EB 54	Ann 34	ase see CAR02	CAR02	OK
<b>j Revision of the monitoring plan</b>					
a Is it indicated if the monitoring plan has been revised?.	EB 54	Ann 34	No revisions to the monitoring plan was made	OK	OK
b Is the date of approval, if revised, included?	EB 54	Ann 34	N/A	OK	OK
<b>k Request for deviation applied to this monitoring period</b>					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a Is any deviation applied to this monitoring period indicated?	EB 54	Ann 34	No deviations indicated.	OK	OK
b Is the reference number, if any deviation applied, included?	EB 54	Ann 34	N/A	OK	OK
<b>l Notification or request of approval of changes</b>					
a Is any notification or request of approval of changes from the project activity as described in the registered CDM-PDD indicated?	EB 54	Ann 34	No notification or request of approval of changes from the project activity indicated.	OK	OK
b Is the date of approval, if applicable, included?	EB 54	Ann 34	N/A	OK	OK
<b>m Description of the monitoring system</b>					
a Is a description of the monitoring system provided?	EB 54	Ann 34	A description of the monitoring plan was given under section 3.3 of the MR	OK	OK
b Does his section include data collection procedures (information flow including data generation, aggregation, recording, calculation and reporting), organizational structure, roles and	EB 54	Ann 34	Please revise section 3.3 in the MR to reflect the monitoring methodology in the registered version of the project PD and also the current status of the	CAR03	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
responsibilities of personnel, and emergency procedures for the monitoring system?			monitoring practices verified on the site through the visit (i.e. meters used for measurements etc.).		
c Does this include line diagrams showing all relevant monitoring points?	EB 54	Ann 34			
<b>n Data and parameters</b>					
a Does this section include parameters used to calculate baseline, project, and leakage emissions as well as other relevant parameters required by the approved methodology and the monitoring plan; and specific information on how data and parameters have been monitored during the monitoring period?	EB 54	Ann 34	<p>Combined margin emission factor for the national grid (<math>EF_{grid,CMY}</math>), as calculated in the PD Ver.Aug.'11 for calculation of baseline emission calculations was included as well as the necessary parameters required by the methodology (<math>EG_{facility,y}</math>, <math>Cap_{P,J}</math>, <math>A_{P,J}</math>)</p> <ol style="list-style-type: none"> <li>1. Regarding <math>EF_{grid,CMY}</math>:               <ol style="list-style-type: none"> <li>a. Please indicate that <math>EF_{grid,CMY}</math> value is valid for the duration of the crediting period;</li> <li>b. Please indicate the version of the referred PD for the parameter;</li> </ol> </li> <li>2. Regarding <math>EG_{facility,y}</math>:               <ol style="list-style-type: none"> <li>a. Source of data is determined as PMUM records in the monitoring plan and readings of these meters as cross-check, please revise accordingly to indicate this;</li> </ol> </li> </ol>	CAR04	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<ul style="list-style-type: none"> <li>b. Please clarify if there are 4 meters used for monitoring;</li> <li>c. Mentioned generation value is not net generation as the parameter requires, please revise;</li> <li>d. Please indicate the applicable monitoring period for the mentioned net generation value;</li> <li>e. Please revise meter models to reflect installed equipment;</li> <li>f. Please clarify which S/N belongs to the main and back-up meters;</li> <li>g. The S/N given second in line contains a typo, please revise;</li> <li>h. Please revise QA/QC procedures to reflect procedures stated in PD Ver. Aug.11</li> </ul> <p>3. Regarding Cap<sub>PJ</sub>:</p> <ul style="list-style-type: none"> <li>a. Please revise the unit for the parameter to ensure consistency with the PD;</li> <li>b. Please revise capacity value to reflect the installed value applicable for the monitoring period;</li> </ul> <p>4. Regarding A<sub>PJ</sub>:</p> <ul style="list-style-type: none"> <li>a. Please justify the value given for project regulation area</li> </ul>		



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b Are data that is determined only once for the crediting period but are used after registration of the project activity included here under section D.1.?	EB 54	Ann 34	Yes, the parameter EF <sub>grid,CMy</sub> is included as calculated in the PD.	OK	OK
c For each parameter the following information, using the tables provided, is provided:					
i Value of monitored parameter in the period for the purpose of calculating emission reductions? To report multiple values, a table may be used and included in this monitoring report or include references to spreadsheet. For default value (such as an IPCC value), where it is ex-post confirmed, the most recent value shall be applied.	EB 54	Ann 34	Values monitored for the duration of the monitoring period have been included as the table requires.	OK	OK
ii Description of the equipment used to monitor each parameter, including details on accuracy class, and calibration information (frequency, date of calibration and validity), if applicable as per monitoring plan?	EB 54	Ann 34	Please see CAR04	CAR04	OK
iii Measuring and recording method: how the parameters are measured/calculated, specifying the measurement and recording frequency?	EB 54	Ann 34	Please see CAR04	CAR04	OK
iv Source of data: logbooks, daily records, surveys, etc?	EB 54	Ann 34	Please see CAR04	CAR04	OK
v Where relevant, the calculation method of the parameter?	EB	Ann	Please see CAR04	CAR04	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	54	34			



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
vi The QA/QC procedures applied (if applicable per monitoring plan)?	EB 54	Ann 34	Please see CAR04	CAR04	OK
vii Include information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of emission reductions?	EB 54	Ann 34	N/A	OK	OK
<b>o Baseline emissions calculation</b>					
a Does this section include all formulae used and description to calculate the baseline emissions applying actual values?	EB 54	Ann 34	Calculations were given with applied values. However; 1. Please revise the parameter EG <sub>2011</sub> , to reflect the defined parameter for consistency; 2. Please revise the value for the parameter EG <sub>facility,y</sub> used in the calculations,	CAR05	OK
b Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	A table depicting the electricity generations for the duration of the monitoring period (Table 1 in the MR) as well as a spreadsheet (Kalkandere_Verification(01.01.2011-31.12.2011)_ER_Calculation) were provided.	OK	OK
<b>p Project emissions calculation</b>					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a Does this section include all formulae used and description to calculate the project emissions applying actual values?	EB 54	Ann 34	Please provide the formulae used for the calculations, and demonstrate calculations with actual values	CL05	OK
			Under section 4.2. second reference to the maximum reservoir altitude is erroneous, please revise.	CL06	OK
			Please use same notation for all parameters representing the actual values monitored e.g. BE <sub>2011</sub> and PEy	CL07	OK
b Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	N/A	OK	OK
<b>q Leakage calculation</b>					
a Does this section include all formulae used and description to calculate the leakage applying actual values?	EB 54	Ann 34	Leakage is assumed 0 in line with the methodology and the project being new.	OK	OK
			Please use same notation for all parameters representing the actual values monitored e.g. BE <sub>2011</sub> and PEy	CL07	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	N/A	OK	OK
<b>r Emission reductions calculation/table</b>					
a Does this section include the formulae used to calculate the emission reductions and the total of the emission reductions achieved during the monitoring period?	EB 54	Ann 34	Formulae has been included.	OK	OK
			Please revise reference to the methodology to ensure consistency of the version applicable.	CL08	OK
			Please clearly show all calculations and results.	CL09	OK
			Please revise reference to EF grid, to ensure consistency.	CL10	OK
i Total baseline emissions:	EB 54	Ann 34	Please see CL09	CL09	OK
ii Total project emissions:	EB 54	Ann 34	Please see CL09	CL09	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii Total leakage:	EB 54	Ann 34	Please see CL09	CL09	OK
iv Total emission reductions:	EB 54	Ann 34	Please see CL09	CL09	OK
<b>s Comparison of actual emission reductions with estimates in the CDM-PDD</b>					
a Does this section include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD?	EB 54	Ann 34	Please include a comparison of the estimated values in the PD Ver.Aug.11 for the monitoring period at hand and the actual values monitored during the same period.	CL11	OK
<b>t Remarks on difference from estimated value in the PD</b>					
a Is an explanation of the cause of any increase in the actual emission reductions achieved during the current monitoring period (e.g. higher water availability, higher load plant factor, etc), including all information (i.e. data and/or parameters) that is different from that stated in the registered CDM-PDD provided?	EB 54	Ann 34	No increase was monitored, hence N/A	OK	OK
<b>2 Project implementation in accordance with the registered project design document</b>					
a Are all physical features of the proposed CDM project activity proposed in the registered PDD in	VVM	196	Implementation of physical features relevant to this monitoring period of the project was verified during	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
place?			the site visit performed on 21/03/2012.		
b Have the project participants operated the proposed CDM project activity as per the registered PDD?	VVM	196	Please provide the training records for trainings referred to in section 3.2 of project PD Ver.Aug.2011	CAR07	OK
c Was an on-site visit conducted?	VVM	196	An on-site visit for verification was performed on 21/03/2012	OK	OK
d If not, justify the rationale of the decision.	VVM	196	N/A	OK	OK
e Does the implementation or operation of CDM project activity conform with the description contained in the registered PDD?	VVM	197	Implementation is conformant with the description in PD Ver.Aug.11	OK	OK
f If not, which are the potential impacts due to these changes, according to the relevant guidelines established by the Executive Board (EB48-§73)?	VVM	197	N/A	OK	OK
g Was any change identified close to the boundary of the project activity but outside it?	VVM	197	No such significant changes were observed.	OK	OK
h If yes, which are the potential impacts due to these changes?	VVM	197	N/A	OK	OK
i Was a notification or a request for approval of changes from the project activity as described in the registered PDD submitted prior to the conclusion of the verification/certification for the corresponding?	VVM	197	No notification or request was submitted	OK	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<b>3 Compliance of the monitoring plan with the monitoring methodology</b>					
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed CDM project activity?	VVM	200	The monitoring plan applied is in compliance with ACM0002 Ver.12	OK	OK
b If no, was a request for revision of the monitoring plan was done? (The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by the CDM Executive Board)	VVM	201	N/A	OK	OK
c Are there any monitoring aspects of the project activity that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	VVM	202	No monitoring aspects that are not specified in the methodology were included.	OK	OK
<b>4 Compliance of monitoring with the monitoring plan</b>					
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	VVM	205	The principles of the applied methodology and the monitoring plan was applied as discussed. Except, internal meter readings are not recorded through a double signed Monthly Meter Reading Protocols between TEIAS and powerplant representative. Instead they are received through e-mail after TEIAS records them wirelessly. Please provide copies of e-mails containing the Protocols, and revise monitoring report to reflect this change	CAR06	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			in methodology.		



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b Have the previous monitoring reports been reviewed?	VVM	205	This is the first verification of the project, hence no available previous monitoring reports.	OK	OK
c Where applicable, has the impact of revision in the monitoring plan on the current verification been reviewed?	VVM	205	N/A	OK	OK
d Does the registered/approved monitoring plan have any description of an illustration to calculate net electricity supplied to the grid by the project activity?	VVM	205	Net electricity supplied to the grid will be deduced from, primarily, PMUM values for electricity supplied and electricity tracted from the grid; and these will be cross-checked through Monthly Meter Reading Protocols.	OK	OK
e If yes to (d) above, has the verification team verified /confirmed the validity of such illustration with supporting documents?	VVM	205	Please see CAR06 and CAR 07	CAR06 CAR07	OK
f Have all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions been sufficiently monitored and updated as applicable, including:	VVM	205			OK
i Project emission parameters?	VVM	205	Please see CAR06 and Kindly justify the submitted technical documentation regarding project reservoir area.	CAR06 CAR08	OK
ii Baseline emission parameters?	VVM	205	Baseline emission parameters are calculated ex-ante and are not monitored for the duration of the crediting period.	OK	OK
iii Leakage parameters?	VVM	205	Since project is greenfield, no leakage is taken into consideration in line with the applicable methodology.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iv Validation of entire procedure of apportioning, if applicable	VVM	205	N/A	OK	OK
v 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?	VVM	205	The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan	OK	OK
g Is the accuracy of equipment used for monitoring in accordance with the relevant guidance provided by the CDM Executive Board and are equipment controlled and calibrated in accordance with the monitoring plan?	VVM	205	A set of ACTARIS SL7000 model meters are used with 0,2 accuracy class(S/N: 53087889 & 53087890). Bothe meters are sealed by TEIAS and mainteance and calibration responsibility is TEIASs under law.	OK	OK
i Are monitoring results consistently recorded as per approved frequency?	VVM	205	Monitoring results have been recorded in the frequency defined in the registered PD ver.Aug.2011	OK	OK
ii Have quality assurance and quality control procedures been applied in accordance with the monitoring plan monitoring plan?	VVM	205	QA/AC procedures are line with the monitoring plan.	OK	OK
iii Has the verification team confirmed whether the applicability and correct implementation of any procedure that replaces direct calibration of meters, and any procedure that leads to calculation of parameters used in the ER determination ?	VVM	205	N/A	OK	OK
<b>5 Assessment of data and calculation of greenhouse gas emission reductions</b>					
a Is a complete set of data for the specified monitoring period is available? (If no, i.e., only partial data are available because activity levels or non-activity	VVM	208	A complete set of data for electricity generation values from both PMUM and Monthly Meter	CAR06	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<p>parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation prior to submitting request for issuance, if appropriate).</p>			<p>Reading Protocols were available. However,</p> <ul style="list-style-type: none"> <li>• Please see CAR06;</li> <li>• Please re-submit the PMUM screen for December 2011, submitted copy is insufficient for verification.</li> </ul>	CAR09	
<p>b Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?</p>	VVM	208	PMUM records were cross-checked with Monthly Meter Reading Protocols provided by TEIAS.	OK	OK
<p>c Have calculations of baseline emissions, proposed CDM project activity 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?</p>	VVM	208	Please see CAR05	CAR05	OK
<p>d Have any assumptions used in emission calculations been justified?</p>	VVM	208	All assumptions have been justified appropriately, in line with the approved methodology.	OK	OK
<p>e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?</p>	VVM	208	N/A	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
<p><b>CAR01</b></p> <p>Please revise the starting date of the monitoring period under section 1.1 of MR</p>	<p>Table 1: 1.a.iv.</p>	<p>Corrected accordingly ("<i>This monitoring period is from 01 January 2011 to 31 December 2011</i>")</p>	<p>Monitoring period date has been corrected,</p> <p>Corrective action request is closed.</p>
<p><b>CAR02</b></p> <p>Please indicate any information regarding the operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring.</p>	<p>Table 1: 1.i.a.</p>	<p>PLEASE SEE THE FOLLOWING EXPLANATIONS UNDER THE SECTION 2.1 OF THE MONITORING REPORT: "<i>Power plant operated normally during this monitoring period. There have been no emergencies happened to the monitoring system in this monitoring period. No faulty measurement or no measurement differences between the meters occurred. Therefore, no calibration happened. The electricity generation of the power plant also realized close to the estimation in the PDD</i>"</p>	<p>No emergencies, special activities, calibration etc. were needed and this statement has been included in MR v02.</p> <p>Corrective action request is closed.</p>



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
<p>CAR03</p> <p>Please revise section 3.3 in the MR to reflect the monitoring methodology in the registered version of the project PD and also the current status of the verified on the site through the visit (i.e. meters used for measurements etc.).</p>	<p>Table 1: 1.m.b.</p>	<p>The Section 3.3 of the Monitoring Report has been revised in line with the current application in the power plant.</p>	<p>Section has been revised to reflect the implemented practices.</p> <p>Corrective action request is closed</p>
<p>CAR04</p> <p>Combined margin emission factor for the national grid (<math>EF_{grid,CMy}</math>), as calculated in the PD Ver.Aug.'11 for calculation of baseline emission calculations was included as well as the necessary parameters required by the methodology (<math>EG_{facility,y}</math>, <math>Cap_{P,j}</math>, <math>A_{P,j}</math>)</p> <p>5. Regarding <math>EF_{grid,CMy}</math>:</p> <ol style="list-style-type: none"> <li>Please indicate that <math>EF_{grid,CMy}</math> value is valid for the duration of the crediting period;</li> <li>Please indicate the version of the referred PD for the parameter;</li> </ol> <p>6. Regarding <math>EG_{facility,y}</math>:</p>	<p>Table 1: 1.n.a.</p>	<p><b><math>EF_{grid,CMy}</math>:</b></p> <ol style="list-style-type: none"> <li>Under 3.1 of the revised Monitoring Report, the following explanation has been added.</li> <li>The source of date has been revised as "<b>Validated VCS Project Description (Version 08) of the Project.</b>"</li> </ol> <p><b><math>EG_{facility,y}</math>:</b></p> <ol style="list-style-type: none"> <li>The source of data has been revised as "PMUM (Market Financial Settlement Center) records (Meter reading records of main meters are cross-checked)" in Section 3.2 of the</li> </ol>	<ol style="list-style-type: none"> <li>Revisions found appropriate;</li> <li>Revisions found appropriate;</li> <li>Revisions found appropriate;</li> <li>Justification found acceptable</li> </ol> <p>Corrective action request is closed</p>

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
<p>a. Source of data is determined as PMUM records in the monitoring plan and readings of these meters as cross-check, please revise accordingly to indicate this;</p> <p>b. Please clarify if there are 4 meters used for monitoring;</p> <p>c. Mentioned generation value is not net generation as the parameter requires, please revise;</p> <p>d. Please indicate the applicable monitoring period for the mentioned net generation value;</p> <p>e. Please revise meter models to reflect installed equipment;</p> <p>f. Please clarify which S/N belongs to the main and back-up meters;</p> <p>g. The S/N given second in line contains a typo, please revise;</p> <p>h. Please revise QA/QC procedures to reflect procedures stated in PD Ver. Aug.11</p> <p>7. Regarding Capex:</p> <p>a. Please revise the unit for the parameter to ensure consistency with the PD;</p> <p>b. Please revise capacity value to</p>		<p>Monitoring Report.</p> <p>b)- The explanation in Monitoring Equipment Row has been corrected as <b>"The model of the meters (The meters installed at Kalkandere power house) is Actaris SL761A and the serial numbers of the meters are 53087889 and 53087890 (The meters of Kizilagac power house has not been installed yet. There will also be 2 meters in the Kizilagac power house)"</b></p> <p>c)- The net electricity generation is 138,333.67 MWh. Corrected accordingly.</p> <p>d)- The "Value monitored" row has been revised as <b>"Electricity generation figure is 138,333.67 MWh for 2011 (from January 1<sup>st</sup> 2011 to</b></p>	

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
<p>reflect the installed value applicable for the monitoring period;</p> <p>8. Regarding APJ:</p> <p>a. Please justify the value given for project regulation area</p>		<p><b>December 31<sup>st</sup> 2011</b>)</p> <p>e)- The meter models given in the first version of the Monitoring Report are in line with the "Ilk Endeks Tespit Protokollü" (ACTARIS, SL761A)</p> <p>f)- The expression in the table has been revised as "<b>...the serial numbers of the meters are 53087889 for main meter and 53087890 for the check meter</b>"</p> <p>g)- corrected accordingly ("53087890")</p> <p>h)- QA/QC Procedures have been corrected in line with the final version of the VCS PD: "<b>Cross check measurements results with records for sold electricity.</b></p> <p><b>Calibration of all the meters will be undertaken at required intervals and faulty meters will be duty replaced immediately.</b>"</p>	

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
		<p><b>Cappj:</b></p> <p>a)- Corrected as “<b>MWe</b>”</p> <p>b)- The installed capacity has been corrected as 35.04 MWe and the following explanation has been added as a footnote: “The total licensed installed capacity of the Project is 42.33 MWe. However, since the second part of the Project (Kizilagac Power house) has not commissioned yet, only the installed capacity of Kalkandere power house is monitored.”)</p> <p><b>APj:</b></p> <p>a)- Reservoir area is measured based on the project drawings. The drawing of the regulation area is uploaded to AutoCad program and the reservoir area has been measured for <u>different elevations</u></p>	

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
		<p>automatically by this computer program. The measurement is made by Mr. Kazım Karaağaç who was project engineer at SANKO Energy.</p> <p>Please see the attached documents and e-mail correspondence.</p> <p>The PDF file includes the screenshots of reservoir areas for different elevations. In order to check the original drawing (the "dwg" file), you can use AutoCad program or any other type of simple programs which shows autocad files.</p>	



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
<p>CAR05</p> <p>Calculations were given with applied values.</p> <p>However;</p> <ol style="list-style-type: none"> <li>1. Please revise the parameter <math>EG_{2011}</math>, to reflect the defined parameter for consistency;</li> <li>2. Please revise the value for the parameter <math>EG_{facility,y}</math> used in the calculations,</li> </ol>	<p>Table 1: 1.o.a.</p>	<p>1)- Corrected accordingly.  <math>(BE_y = EG_y \times EF_{grid,CM})</math></p> <p>2)- Corrected as "138,333 MWh".</p> <p><b>Response #2</b></p> <p>1)- Corrected as</p> <p>"<math>BE_{2011} = EG_{PJ,2011} \times EF_{grid,CM,2011}</math>"</p>	<p>1. Reviewer meant the missing PJ subscript, 2011 substitution for y was correct, please do substitute the applicable year for all "y"s; please revise accordingly;</p> <p>2. Correction made;</p> <p>Corrective action request remains open</p> <p>Review2:</p> <p>Corrected appropriately</p> <p>Corrective action request is closed</p>
<p>CAR06</p> <p>The principles of the applied methodology and the monitoring plan was applied as discussed. Except, internal meter readings are not</p>	<p>Table 1: 4.a.</p>	<p>Some of the emails which include the OSF forms are provided in the attachment for cross checking.</p> <p>All of the OSF forms which were sent to the plant engineer by TEIAS</p>	<p>Please include this change in the monitoring plan and its justification under section 2.2 of MR.</p>

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
<p>recorded through a double signed Monthly Meter Reading Protocols between TEIAS and powerplant representative. Instead they are received through e-mail after TEIAS records them wirelessly. Please provide copies of e-mails containing the Protocols, and revise monitoring report to reflect this change in methodology.</p>		<p>representative regarding the related month's electricity generations and imports were provided to the validation team previously.</p> <p><b>Response #2</b> The change in the Monitoring Plan has been explained under Section 2.2 of the revised MR.</p>	<p>Corrective action request is open</p> <p>Review2:  Deviations have been included in Section 2.2</p> <p>Corrective action request is closed.</p>
<p>CAR07  Please provide the training records for trainings referred to in section 3.2 of project PD Ver.Aug.2011</p>	<p>Table 1: 2.b.</p>	<p>The Section 3.2 of the VCS PD includes the following information: <i>"The Electrical Engineers will receive sufficient and continuous training in terms of monitoring and verification on aspects such as meter's reading and calibration and reading's recording, adjustment and reporting every year. If new personnel are hired, they will have to follow up a training program and will be trained in the specific</i></p>	<p>Kindly include this change in the monitoring plan and its justification under section 2.2 of MR</p> <p>Corrective action request remains open</p>

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
		<p><i>skills required to carry out the Monitoring Plan.”</i></p> <p>The electrical engineers will not be trained in terms of meter readings and calibration, since the meter readings are made by TEIAS in every month remotely and the company is not responsible for the calibration of the meters. However, for the next Monitoring Periods, the plant engineer will be trained regarding the monitoring of emission reductions.</p> <p>In this monitoring period, Mr. Taner Sengonul from the Head Quarter who was also involved in the validation of the project was responsible for the data collection and general management of the Monitoring period. In the next Monitoring Periods, the plant engineer will be responsible for the collection of necessary data for the ER calculations and preparation of the Monitoring Report and Mr. Taner Sengonul from the HQ will be responsible for the management</p>	<p>Review2:</p> <p>Deviations have been included in section 2.2</p> <p>Corrective action request is closed.</p>



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
<p>CAR08</p> <p>Kindly justify the submitted technical documentation regarding project reservoir area.</p>	<p>Table 1: 4.f.i.</p>	<p>of the verification process. Therefore, no training mentioned in the Monitoring Section of the VCS PD exists.</p> <p><b>Response #2</b></p> <p>The change in the Monitoring Plan has been explained under Section 2.2 of the revised MR.</p>	
		<p>Reservoir area is measured based on the project drawings. The drawing of the regulation area is uploaded to AutoCad program and the reservoir area has been measured for different elevations automatically by this computer program. The measurement is made by Mr. Kazım Karaağaç who was project engineer at SANKO Energy.</p> <p>Please see the attached documents</p>	<p>Justification found acceptable;</p> <p>Corrective action request is closed</p>

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
		and e-mail correspondence.	
<p>CAR09</p> <p>Please re-submit the PMUM screen for December 2011, submitted copy is insufficient for verification</p>	<p>Table 1: 5.a.</p>	<p>THE PDF FILE INCLUDES THE SCREENSHOTS OF RESERVOIR AREAS FOR DIFFERENT ELEVATIONS. IN ORDER TO CHECK THE ORIGINAL DRAWING (THE "DWG" FILE), YOU CAN USE AUTOCAD PROGRAM OR ANY OTHER TYPE OF SIMPLE PROGRAMS WHICH SHOWS AUTOCAD FILES</p>	<p>A valid copy was provided,</p> <p>Corrective action request is closed.</p>
<p>CL01</p> <p>Please revise description to include brief information about the technology and equipments installed.</p>	<p>Table 1: 1.a.ii.</p>	<p>Extra information about equipment and technology is added at Section 1.1 in Monitoring Report version 2.</p>	<p>1. Please include the source of the technical information;</p> <p>2. Table indicates an installed capacity of 35.03 MWe, inconsistent with other capacity references, please revise</p>



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
<p>CL02</p> <p>Please include a project timeline to show justifiable important dates of the project activity.</p>	<p>Table 1: 1.a.iii.</p>	<p><b>Response #2</b></p> <p>1)- The table inserted to Monitoring Report, Section 1.1 under Project Technology title is obtained from the validated VCS PD of the project. The paragraph above this title has been removed from the revised MR.</p> <p>2)- Corrected as "35.04"</p>	<p>Clarification request remains open</p> <p>Table was copied from the validated PD</p> <p>Correction applied.</p> <p>Clarification is closed.</p>
<p>Please include a project timeline to show justifiable important dates of the project activity.</p>	<p>Table 1: 1.a.iii.</p>	<p>The timeline of the project in the validated VCS PD has been added under Section</p> <p><b>Response #2</b></p> <p>Since the project has not been registered, registration date could</p>	<p>A timeline based on Table 10 in PD v08 has been included in Monitoring Report v02.,</p> <p>Kindly include the registration date of the project in the timeline</p>



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
		<p>have not been added to the timeline.</p> <p><b>Response #3</b></p> <p>The following footnote has been added to the cover page of the report: <i>"The project has not been registered to VCS Database yet. Therefore, "Project ID" is not available at this stage."</i></p>	<p>Clarification request remains open</p> <p>Please include this information in the MR</p> <p>Clarification request remains open.</p> <p>Review 4: Accepted. Clarification request is closed.</p>
<p><b>CL03</b></p> <p>1. Please indicate the name(s) of related village(s), town(s), municipalitie(s);</p> <p><del>2. Please remove the coordinates of the</del></p>	<p>Table 1: 1.c.a.</p>	<p>1. The names of village, towns and municipalities, which are related to the project, are added in Monitoring Report version 3.</p> <p>2. Kizilagac powerhouse coordinates are removed from the Monitoring</p>	<p>Revised as advised.</p> <p>Clarification request is closed</p>



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
<p>Kizilgac powerhouse since it is not relevant to the monitoring period.</p> <p>CL04</p> <p>Please also indicate the total number of years in the crediting period.</p>	<p>Table 1: 1.g.a.</p>	<p>Report version 3.</p> <p>Total crediting period is 10 years. Included to the revised Monitoring Report.</p>	<p>Total crediting period of 10 years has been included.</p> <p>Clarification request is closed</p>
<p>CL05</p> <p>Please provide the formulae used for the calculations, and demonstrate calculations with actual values</p>	<p>Table 1: 1.p.a.</p>	<p>All the formulas used in the calculations are provided in the Monitoring Report. All the calculations are demonstrated with actual values.</p> <p><b>Response #2</b></p> <p>Power density calculation formula has been added under Section 4.2 of the revised Monitoring Report.</p> <p>The formula for the calculation of project emissions has been removed from the Monitoring Report, v3.</p>	<p>Formula for power density calculation still is not visible under section 4.2 of MR v02.</p> <p>Please remove redundant project emissions formulations since PD calculation reveals the project emissions for the project.</p>

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
			<p>Clarification request remains open</p> <p>Review 2:</p> <p>Redundant formula removed, PD formula added.</p> <p>Clarification request is closed.</p>
<p>CL06</p> <p>Under section 4.2. second reference to the maximum reservoir altitude is erroneous, please revise.</p>	<p>Table 1: 1.p.a.</p>	<p>The maximum reservoir altitude is 224.92 m. Corrected accordingly.</p>	<p>Value has been corrected.</p> <p>Clarification request is closed</p>
<p>CL07</p> <p>Please use same notation for all parameters representing the actual values monitored e.g.</p>	<p>Table 1: 1.p.a.</p>	<p>Please see the revised Monitoring Report.</p>	<p>PE<sub>2011</sub> should be the adopted notation.</p>



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
<p>BE<sub>2011</sub> and Pey</p>		<p><b>Response #2</b> The notation has been corrected as "PE<sub>2011</sub>"</p> <p><b>Response #3</b> Revised accordingly. "ER<sub>2011</sub> = BE<sub>2011</sub>" -ER<sub>2011</sub> = 77,328 tCO<sub>2</sub>"</p>	<p>Clarification request remains open.</p> <p>Emission Reductions are also defined annually, please revise</p> <p>Clarification request is open.</p> <p>Review4: OK.</p> <p>Clarification request is closed</p>
<p>CL08 Please revise reference to the methodology to ensure consistency of the version applicable.</p>	<p>Table 1: 1.r.a.</p>	<p>The reference link to the methodology has been corrected. (The link for the methodology which includes all the versions has been provided. Since the Version 12 of the methodology <u>had been amended</u></p>	<p>Reviewer was not commenting on a link but on the <i>mentioning</i> of v10. Version amended appropriately.</p>

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
CL09 Please clearly show all calculations and results.	Table 1: 1.r.a.	and last, the version 12.3.0 was published, the version 12 of the methodology cannot be displayed.)	Clarification request is closed.
CL10 Please revise reference to EF grid, to ensure consistency.	Table 1: 1.r.a.	All calculations and results have been provided in the revised Monitoring Report clearly.  Not understood.  <b>Response #2:</b> Corrected as " $EF_{Grid,CM,y} = 0.559 tCO_2/MWh$ "	Clarification request is closed  Reviewer has meant the EFgrid under table 2, please revise;  Clarification request remains open  Revised as necessary
CL11	Table 1: 1.s.a.	The following explanation has been added to the revised Monitoring	Clarification request is closed.  A comparison of values have been

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
<p>Please include a comparison of the estimated values in the PD Ver.Aug.11 for the monitoring period at hand and the actual values monitored during the same period.</p>		<p>Report:  <i>"The total annual electricity generation of the project is estimated as 179,050 MWh/year and the estimated annual electricity generation for Kalkandere Power house is 150,670 MWh. Since the Kizilagac part of the project has not commissioned yet, the expected electricity generation of 28,380 MWh/year from Kizilagac part did not realize in 2011. Also, the electricity generation of Kalkandere power house realized as 138,333 MWh and this figure is 8% less than the estimated figure. However, there is not an efficiency problem in the power house and this less electricity generation resulted from the periodical volatility of the water flow in the river."</i></p>	<p>added,  Clarification request is closed</p>



