VALIDATION REPORT

ALKUMRU HYDROELECTRIC POWER PLANT

TURKEY

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Summary:

TÜV Rheinland Energie und Umwelt GmbH is contracted for the validation of the Alkumru HPP with total expected installed capacity of 275.52 MW against the VCS Standard version 3.3. The validation is performed by applying CDM methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” version 13.0.0 in combination with the “Tool to calculate the emission factor for an electricity system” version 02.2.1, the “Tool for the demonstration and assessment of additionality” version 06.0.0 and further CDM guidelines. During the desk review, VSC PD, ER workbook, investment analysis workbook and other supporting evidence were assessed and resulted in short list of Clarification and Corrective Action Requests (CL/CAR included as Annex). The on-site visit was conducted on 13/11/2012-14/11/2012, which provided clarification on project history, milestones and development. The respective responses to CLs/CARs and required revisions of project design document lead to issuance of validation report with positive opinion. GHG emissions data and information are fairly represented without material discrepancies and declared GHG emission reductions are materially correct.

VVB identifies Alkumru HPP project to be eligible to VCS ver. 3.3 requirements and additional in accordance with the CDM methodology ACM0002 version 13.0.0.

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1 INTRODUCTION

This report summarises the findings of the validation of the Alkumru Hydroelectric Power Plant Project in Turkey, performed on the basis of the VCS standard version 3.3 as well as methodologies provided to ensure consistency in project operations, monitoring and reporting.

1.1 Objective

The purpose of the validation report is to confirm that the Alkumru Hydroelectric Power Plant project (hereafter the project) and all related project documentation conforms with all rules and requirements of the VCS Standard v 3.3 and the applied GHG methodology, here ACM0002, version 13 and its associated tools.

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, 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.

Further the validation shall be made for an initial crediting period of 10 years (10/03/2011 – 09/03/2021) as being part of possible 2 x 10 years of crediting period in total. Therefore, this is to be considered the first validation process for this project. Upon successful validation the project shall be approved by the VCS program to be included as a registered VCS project generating Verified Carbon Units (VCUs).

1.2 Scope and Criteria

Validation is performed in compliance with VCS criteria stated in the VCS standard v3.3 and VCS program guide v3.4. In addition criteria stipulated by the approved methodology ACM0002 'Consolidated baseline methodology for grid-connected electricity generation from renewable sources' version 13.0.0 and the methodological tools 'Tool to calculate the emission factor for an electricity system' v02.2.1 and 'Tool for the demonstration and assessment of additionality' v06.0.0, since the mentioned are implemented in project description.

The validation 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 design.

1.3 Level of assurance

The final validation is based on the latest project description, VCS PD v2.1, dated 10/12/2012, supporting documents made available to the validator, own background research and investigations and information collected through performing interviews and during on-site assessment. The validation opinion is assured throughout the credibility of the above mentioned sources of information.

The validation statement is made to a reasonable assurance level, and a materiality threshold of 1% for large projects is applied for identification of material omissions as required by VCS v3.3 paragraph 5.3.1 item 4. In general it shall be adhered to the procedures as defined in ISO 14064-3.

1.4 Summary Description of the Project

The Alkumru hydroelectric power plant (HPP) project is located in the Eastern Anatolia Geographical District of Turkey at the Botan River, one of the major tributaries of the Tigris.

A concrete weir dams the Botan River to a maximum water level of 647 m (above sea level). A 124m long penstock with bottom trification channels the water past the three vertical Francis turbines to a tail water level of 541.8m. The power house (with geographic coordinates 37° 57' 25.24''N 42° 5' 30.08''E) is therefore located in close proximity to the reservoir which has a maximum area of 10.99 km^2.

Each one of the three existing Francis turbines has a capacity of 87.09 MW_e, resulting in an overall capacity of 261.27 MW_e and an expected annual electricity production of 875.84 GWh. A fourth, horizontal Francis turbine with a 14.25 MW_e capacity is currently under construction and is expected to become operational beginning of 2014. By this year the total project capacity will reach 275.52 MW_e and is estimated to procude 881.21 GWh per year.

The project has been developed by Limak Hidroelektrik Santral Yatirimtari Anonim Sirketi.

The project aims to reduce greenhouse gases in Turkey by substituting emissions from fossil fuel fired power plants. The validation team was able to confirm the accuracy of the project description by reviewing maps and technical drawing during the site visit, as well as interviews and inspections conducted during the on-site audit.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation of Alkumru HPP has been performed in accordance to the internal procedures of TÜV Rheinland Emergie und Umwelt GmbH for validation of VCS projects, which strictly follow ISO 14046-3 and ANSI accreditation to ISO 14065[1].

During preparation stage following tasks are accomplished:

- Selection of an appropriate validation team
- Development of the audit plan
- Preparation of project and standard specific validation protocol, which shows in a transparent manner, criteria and requirements, means of validation and the results from validating the different identified issues

The validation process begins when the PPs submit the VCS PD to the validation team along with additional supporting information, in particular spreadsheet for the calculation of the combined margin grid emission factor and the investment analysis. The validation team then reviews the documents and

[1] TÜV Rheinland Energie und Umwelt GmbH was awarded a Certificate of Accreditation by ANSI on 22/06/2012.

submits the desk review findings to the PPs. During the on-site visit, the validation team meets with the project company in the project site. The validation team confirms that the actual project conforms to the VCS PD, collects further supporting documents and discusses the desk review findings with the PPs. Following the site visit a validation protocol is shared with the PPs. The protocol lists all Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FAR). The CAR/CLs are then closed by the PPs who are delivering additional supporting evidence and make necessary amendments to the VCS PD.

A FAR 1 has been issued for confirmation of electricity self-consumption once Unit 4 is in operation. This issue has not interfered in the estimated emissions reductions. Once all CARs/CLs are closed, the validation team drafts the validation report. It is issued, after successfully passing the Internal Technical Review.

The core validation consisted of the following phases:

- Desk review of the project design documents
- On-site visit (site inspection) and follow-up interviews with project stakeholders
- Resolution of outstanding issues including material discrepancies and the issuance of the draft validation report
- Internal technical review and issuance of final validation report.

The following sections outline each step in more detail.

2.2 Document Review

The desk review phase is characterised with the assessment of project description and emission reduction workbooks substantiated by additional supportive documents, all of which have been provided by the carbon consultant.

The following table outlines the documents reviewed as part of the validation process.

Table 1: List of reviewed documents

No.	Document	Comment	Date submitted
1	UNFCCC CDM Validation and Verification Manual	Official reference, v.01.2, EB55 Annex 1	
2	UNFCCC ACM0002	Official reference, “Consolidated methodology for grid-connected electricity generation from renewable sources”, v.13, EB67	
3	UNFCCC calculation tool for emission factor	Official reference, “Tool to calculate the emission factor for an electricity system”. V.02.2.1, EB 63 Annex 19	
4	UNFCCC additionality tool	Official reference, “Tool for the demonstration and assessment of additionality”, v.06.0.0, EB65 Annex 21	
5	VCS Program Guide, version 3.4	Official reference, published 04/10/2012, www.v-c-s.org	
6	VCS Project Description for Alkumru HEPP, v1.00	Draft VCS PD v1.00	01/11/2012
7	VCS Project Description for Alkumru HEPP, v2.0	Draft VCS PD v2.0	06/12/2012
8	Emission reduction & EF calculations	Spreadsheet part of the project description report	01/11/2012

	spreadsheet		
9	Project milestones	List of the project milestones	01/11/2012
10	Financial analysis	Spreadsheet of the financial analysis to determine additionality	01/11/2012
11	Common practice analysis	Spreadsheet to determine the common practice in Turkey	01/11/2012
12	Water usage agreement & amendment		01/11/2012
13	EMRA Licence (Sep 2007)	Energy production licence issued by the Energy Market Regulatory Authority (EMRA) for Alkumru HEPP (3 turbines, installed capacity of 80 MWe each=240 MWe, electricity generation capacity 828.07 GWh)	01/11/2012
14	EMRA approved capacity upgrade (Apr 2010)	Amended production licence for Alkumru HEPP (3 turbines, installed capacity of 87.09 MWe each=261 MWe, electricity generation capacity 875.84 GWh)	01/11/2012
15	MoEUP approval for design upgrade (Oct 2012)	Approval by the Ministry of Environment and Urban Planning for the addition of the 4th turbine (14.25 MWe) to reach a total installed capacity of 275.52 MWe	01/11/2012
16	Correlation graph - Reservoir volume and surface area	Graph to identify the reservoir's surface area using the water level measurements (see Annex 4)	01/11/2012
18	Connection agreement	Agreement between TEİAŞ and the PO	01/11/2012
19	EIA affirmative certificate	Affirmative certificate by the Ministry of Environment and Urban Planning	01/11/2012
20	Energy transmission line contract	Subcontractor agreement for construction of transmission line (Aug 2009)	01/11/2012
21	System usage agreement	Agreement between TEİAŞ and the PO	01/11/2012
22	Substantial completion protocol - transmission line	The completion of the construction of the TEİAŞ electricity transmission line and the preliminary acceptance by the Ministry of Energy	01/11/2012
23	Preliminary approval - units 1 & 2	Preliminary acceptance of the dam and the HEPP for two units	01/11/2012
24	Preliminary approval - unit 3	Preliminary acceptance of the dam and the HEPP for the third unit	01/11/2012
29	Memorandum by PO for construction start date	Construction start date confirmed as 15. August 2008	01/11/2012
30	Feasibility Report for Alkumru HEPP	Published October 2012	09/11/2012
31	Construction Agreement	Contract submitted for signature 14 April 2008; signed on 27 August 2008	04/12/2012
32	Energy Atlas for Turkey	Energy except from the Atlas (2004)	04/12/2012
33	Thermal power plants in Turkey		04/12/2012
34	Investment decision process	Copy of email confirming the credit request submitted to the banks, 6th June 2008	04/12/2012
35	Emission reduction & EF calculations spreadsheet v2	Spreadsheet part of the project description report	06/12/2012
36	Financial analysis v2	Spreadsheet of the financial analysis to determine additionality	06/12/2012
37	Feasibility Report for Alkumru HEPP	Published in October 2006; numbers used for investment analysis where possible	06/12/2012
38	VCS Project Description Template v3.1	Latest template from 4 Oct 2012	01/11/2012
39	Contract for supply and installation of electromechanical equipment		01/11/2012

40	UNFCCC project & leakage tool	Official reference, "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" v.2	
41	UNFCCC Common Practice Guidelines	Official reference, "Guidelines on Common Practice". V1.0, EB 63 Annex 12	
42	VCS Standard, version 3.4	Official reference, published 04/10/2012, www.v-c-s.org	
43	UNFCCC Investment Guidelines	Official reference, "Guidelines on the assessment of investment analysis" v 05, EB 62. Annex 5	
44	Loan Agreement	Basis for the financial analysis	10/12/2012
45	ETSAP Technology Brief - Hydropower	Used to estimate the insurance cost as an overall part of annual operations & maintenance cost	10/12/2012
46	Emission reduction & EF calculations spreadsheet v2	Updated spreadsheet part of the project description report	10/12/2012
47	LSC meeting minutes		10/12/2012
48	Final EIA Report		14/12/2012
49	Article 28 'Guarantee of the Work and Guarantee Period' of the Contract for supply and installation of electromechanical equipment		14/12/2012
50	VCS Project Description for Alkumru HEPP, v2.1	VCS PD v2.1	10/12/2012
51	List of Employees		14/12/2012
52	Screenshot of PMUM data for March 2011	Used to demontrate the start date of the project	14/12/2012

2.3 Interviews

The validation team went on an onsite visit to assess the situation on the ground and interview relevant personnel.

Table 2: Overview of interviews during the on-site validation visit

Name	Position/ Organisation	Topic
Cercis Güneş	Project Manager, Mechanical Equipment; Limak Enerji Üretim Dağıtım Sanayi ve Ticaret A.Ş.	Regulation, rules and regulation compliance, financial information.
Elçin Caner	Project Development Manager, Limak Holding A.Ş.	Rules and regulation compliance, sustainability and environmental issues.
Kasım Eren	Operations Manager, Limak Hidroelektrik Santral Yatirimlari A.Ş.	Daily operation, technical set-up, maintenance, coordination of electricity accounting, data management.
Asli Sezer Özçelik	Carbon Consultant, Ekobil Ltd.	Primary contact for validation
Murat Özçelik	Carbon Consultant, Ekobil Ltd.	

2.4 Site Inspections

The on-site inspection took place on 13 & 14/11/2012 in Kurtalan, Turkey. The objective of the on-site inspection is to acquire details on project development and operation, and prove validity and authenticity of delivered supporting documents. The audit plan was provided to the carbon consultant and PP and agreed upon. The site inspection was carried out by means of interviews with the persons indicated in section 2.3 (above).

2.5 Resolution of Any Material Discrepancy

The validation protocol was prepared following the site visit during which all issues identified during the desk review were discussed. All CAR/CLs have been resolved by PPs via provision of additional supporting evidence and appropriate changes to the PD.

A Forward Action Request (FAR 1) was raised to clarify the monitoring of electricity self-consumption after installation of Unit 4.

All this issues are shown in Annex 5.2.

3 VALIDATION FINDINGS

3.1 Project Design

The outcomes of the thorough validation process and the VVB judgement on the Alkumru HPP are summarised below, as required per VCS Standard, v3.3 /42/.

- Project scope, type, activities, location, technologies and measures implemented, and eligibility of the project

The proposed project activity is proved to refer to sectoral scope 1: Energy industries (renewable and non-renewable, by scrutinising the VCS PD v2.1 /50/ and additional project distinctive documents such as the EMRA Licence /13/, the Feasibility Study Report /30/, etc. The project activity is a new hydroelectric power plant (green field) and did not replace any old plant, which was verified onsite and also through the construction agreement /31/.

The project is located in Turkey's Eastern Anatolian Region (geographic coordinates 37° 57' 25.24''N 42° 5' 30.08''E). A concrete weir dams the Botan River to a maximum water level of 647 m (above sea level). A 124m long, cement covered penstock with bottom trification channels the water past the three vertical Francis turbines to a tail water level of 541.8m. Each one of the three existing Francis turbines has a capacity of 87.09 MW_e, resulting in an overall capacity of 261.27 MW_e and an expected annual electricity production of 875.84 GWh. A fourth, horizontal Francis turbine with a 14.25 MW_e capacity is currently under construction and is expected to become operational beginning of 2014.

The estimated annual power generation until end of 2013 is 875.84 GWh, which will be supplied to the national grid, and this value will be multiplied by the combined margin emission factor, determined ex-

ante, to calculate the emissions reductions which are expected to be 472,824 tCO_2 per year until end of 2013.

With the addition of the fourth turbine which will become operational beginning of 2014 the installed capacity is expected to reach 275.52MWe and an estimated annual power generation of 881.21 GWh which would result in emissions of 475,723 tCO_2 per year from 2014 onwards.

The capacity of the three turbines in operation could be validated during the onsite visit. The capacity of the fourth turbine could be validated through the approval document of the design upgrade by the Ministry of Environment and Urban Planning /15/ from October 2012.

In addition, the validation team witnessed that the proposed project activity fulfils VCS program specific issues[2], namely:

- Handle CO_2, i.e. one of the six Kyoto protocol greenhouse gasses
- VSC project design and validation report are provided in English, site inspection and interviews are also conducted in English.
- PP claims real and measurable emission reduction credits.
- PP applies for 10 years crediting period
- Project is submitted to VCS registry within 2 years after operation

- Project proponent

Limak Hidroelektrik Santral Yatirimtari A.Ş. is identified as project owner (PO) and project proponent (PP) within the VCS PD/50/, and Ekobil Ltd. – project participant (entity which prepared VCS PD), by reference to the EMRA generation licence /13/, and other permits and project-relevant documents.

- Project start date

The starting date of the proposed project is identified as 10/03/2011.The Substantial Completion Protocol of the transmission line /22/ reveals that its installation was completed before the 22/12/2010. The Preliminary Approval for Unit 1 & Unit 2 from 10/03/2011 confirms that electricity generation and supply to the national grid could not start before the official starting date. Taking into account the VCS Standard v3.3 /42/ section 3.8 and the definition of project start date per VCS Program Definition v3.4 /5/ and the listed evidences, the project start date, which is indicated in the VCS PD /50/ is confirmed.

- Project crediting period

The selected project crediting period of 10 years, beginning from the 10/03/2011, is in compliance with the VCS Standard v3.3 /42/ section 3.9.1.

- Project scale and estimated GHG emission reductions or removals

[2] Refer to the VCS Standard v3.3 section 2

The CDM methodology, which is applied to the assessment of project activity, Alkumru HPP is classified as large scale project, i.e. project's installed capacity (261.27 MW) is higher than the 15 MW benchmark as defined in the Glossary of CDM terms.

In compliance with the VCS Standard v3.3 /42/ and substantiated by the emission reduction calculation, which are validated and proved accurate by the VVB in the subsequent sections, the proposed project activity is expected to reach annual GHG emission reductions of 471,824 tCO_2/year until end of 2013, and 475,723 tCO_2/year from 2014 onwards.

- Project compliance with applicable laws, statutes and other regulatory frameworks

Projects compliance with the regulation of the host country (i.e. the Republic of Turkey) was demonstrated within the VCS PD /50/, where Annex 1 lists all relevant legally binding regulation. The EMRA Generation Licence /13/ and the EIA-Not-Required Certificate /19/ are some of obligatory documents.

- Ownership and other programs

By reference to the EMRA generation licence /13/ and other legal document, validation team confirms that the project owner is accurately indicated in the VCS PD /50/ as Limak Hidroelektrik Santral Yatirimtari A.Ş..

The interviews with PO and Carbon Consultant during site inspection indicated that the project has not participated and is not registered under other GHG Programs and has not generated any other form of environmental credits.

3.2 Application of Methodology

3.2.1 Title and Reference

VCS standard allows the implementation of all approved UN CDM methodology for development of VCS project activity.

The latest version of the approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 13.0.0 /2/ (hereafter ACM0002 v13.0.0) is used to develop the proposed project activity under VCS. Additionally methodology related tools and relevant guidelines are applied, namely

- "Tool for the demonstration and assessment of additionality" Version 06 /4/
- "Tool to calculate the emission factor for an electricity system". Version 02.2.1 /3/
- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" Version 02 /40/
- "Guidelines on the assessment of investment analysis" Version 05 /43/
- "Guidelines on Common Practice" Version 01.0 /41/

3.2.2 Applicability

The selected approved methodology ACM0002 v13.0.0 /2/ covers large scale projects activities which occur as grid-connected electricity generation from renewable sources. The applicability of the methodology to the proposed project activity is discussed in detail in the VCS PD /50/, following the applicability criteria listed within the methodology.

The validation team determined the applicability of ACM0002 v13.0.0 /2/ to the Alkumru HPP considering the methodology-specific conditions as follows:

Applicability criteria of the methodology ACM0002 v13.0.0	Criteria fulfilled	Determination by the validation team
This methodology is applicable to grid-connected renewable power generation project activities that	☒ Yes ☐ No	As per VCS PD /50/ and EMRA generation licence /13/, the project is developed as hydroelectric power plant, which delivers the generated electricity to the Turkish national grid. In addition during the site inspection it was experienced that the power plant is commissioned and supplies electricity to the grid.
a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant);		The project was developed as a green field one validated through the construction agreement /31/ as well as the onsite visit.
b) involve a capacity addition		N.A.
c) involve a retrofit of (an) existing plant(s)		N.A.
d) involve a replacement of (an) existing plant(s)		N.A.
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	☒ Yes ☐ No	The proposed project activity is developed and operated as a hydroelectric power plant.
In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter EGPJ,y): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	☒ Yes ☐ No	N.A.

Applicability criteria of the methodology ACM0002 v13.0.0	Criteria fulfilled	Determination by the validation team
In case of hydro Power Plants one of the following conditions must apply: • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m2; • The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m^2	☒ Yes ☐ No	Alkumru HPP is a green-field project, i.e. no power plant or reservoirs existed. Hence project activity resulted in new single reservoir, which was perceived during the site inspection. The power density was calculated and validated as 25.07 W/m^2, which is greater than 4W/m^2.
In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m2 all the following conditions must apply.	☒ Yes ☐ No	**N.A**. It was observed that the power plant uses only 1 reservoir with surface area of 10.00 km^2 at the maximum operation level.
The methodology is not applicable to the following: • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants; • A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the power plant is less than 4 W/m2.	☒ Yes ☐ No	The proposed project does not involve switching from fossil fuel to renewable energy source, neither is it a biomass fired power plant, nor a hydropower plant (see above). It was already revealed that the power plant entails a new single reservoir with power density > 4 W/m^2.
In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	☒ Yes ☐ No	N.A. Proposed project activity is green-field one.

Provided that all applicability criteria defined within the approved methodology ACM0002 v13.0.0 /2/ are proved to be fulfilled, Validation team deduce that the selected methodology is applicable for the proposed project activity.

3.2.3 Project Boundary

According to the ACM0002 /2/, "the spatial boundary of the project activity includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to".

The TEIAS connection agreement /18/ states that the hydroelectric power plant is connected to the Turkish national grid. Thus, the project boundary is accurately identified within the VCS PD /50/ as the "net electricity generated and supplied to the Turkish national grid". Furthermore, emission sources and gasses included in or excluded from the project boundary are clearly identified.

3.2.4 Baseline Scenario

The baseline scenario for a new grid-connected renewable power plant is prescribed by the selected methodology ACM0002 v13.0.0 as

> "Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the ""Tool to calculate the emission factor for an electricity system" ".

and accordingly implemented within project description for Alkumru HPP, as Alkumru HPP proved to be a new grid-connected renewable power plant.

Additionally, the carbon consultant specified that the "baseline scenario is the supply of the equivalent amount of annual power output by the existing Turkish national grid which is the continued operation of existing power plants and the addition of new sources to meet electricity demand". Therefore, reported baseline scenario is consistent with the ACM0002 v13.0.0./2/

3.2.5 Additionality

According to the VCS standard v3.3 /42/ "Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project." Consequently the selected methodology together with the methodological "Tool for the Demonstration and Assessment of Additionality" v6.0.0 /4/ and the "Guidelines on the assessment of investment analysis" v05 /43/ are used for the demonstration of additionality of Alkumru HPP. As per additionality tool v6.0.0 /4/ the assessment is performed in 3 steps, i.e. Step 1: Identification of alternatives to the project activity consistent with the mandatory laws and regulations; Step 2: Investment analysis and Step 4: Common practice analysis. Step 3: Barrier analysis is optional and is to be performed in case that the project activity deems unlikely to be financially attractive, which apparently is not the case.

The date of investment decision, as in the sense of CDM methodology, is identified as 06/06/2008, based on an email /34/ confirming the credit request for this project submitted to the banks, which is the first actual commitment of the PO to Alkumru HPP.

- Step 1: Alternatives

In the VCS PD the only realistic and credible alternative scenario to the project activity has been identified as the "Continuation of the current situation, without any project undertaken". This is in line with the "Tool for the demonstration and assessment of additionality" v06.0.0 /4/ and adopted for the assessment of additionality of Alkumru HPP, is determined to be a credible and realistic scenario.

Based on the knowledge of the validation team and the competence of the carbon consultant, the continuation of current situation (without any project) is consistent with all relevant mandatory laws and regulations which are listed in Annex 1 to the VCS PD /50/ and thus recognised as plausible alternative to the proposed project activity.

- Step 2: Investment analysis

The investment analysis is based on the benchmark approach, which is determined to be the only applicable and most appropriate method. Default benchmark values per country and sector are provided in the "Guidelines on the assessment of investment analysis" v05 /43/. Since the republic of Turkey is not included in this table, carbon consultant adopted the benchmark determined for group 1 activity in a country with the same Moody's index (namely Ba2).

As per the guidelines v05 /43/, the expected return on equity is composed of four elements (a) a risk free rate of return; (b) an equity risk premium; (c) a risk premium for the host country; and (d) an adjustment factor to reflect the risk of projects in different sectoral scopes. Apparently, the only country dependent factor is (c) risk premium for the host country, which is estimated using the Moody's rating for the host country. In this case the estimated benchmark for IRR on equity for Turkey is the same as the benchmark for IRR on return for a country with the same Moody's index, i.e. Ba2. Thus the validation team confirms the correctness of the selected benchmark of 12.5% for proposed project activity in Turkey.

The detailed workbook on the financial analysis for the Alkumru HPP /36/ is provided to the validation team. The file demonstrates the calculation of the internal rate of return on equity, including all assumptions and intermediate calculations. The parameters are presented in transparent and traceable manner, so that the validation team was able to prove the correctness and credibility of any input data and assumption.

Confidential information such as the Contract for the supply and installation of electro-mechanical equipment /39/, the loan agreement /43/ and Procurement and construction agreement /31/ were disclosed to the validation team in order to substantiate actual values and/or prove the accuracy of assumptions, which are employed in the investment analysis. As the time between the initial FSR (Oct 2006) and the investment decision date (June 2008) is relatively long, only the installed capacity value, the expected annual electricity generation value and the anticipated costs for maintenance and spare parts have been used from the 2006 FSR /37/ while more up to date information regarding the loan has been taken from other sources that have been available at the time of investment decision, see Table 3.

The most important parameters, incl. source, value and substantiation are listed below.

Table 3: Main values of investment analysis and means of verification

Parameter	Validated value	Means of verification
Installed Capacity	240.00 MWe	FSR from 2006 /37/
Expected Annual Electricity Generation	822,130 MWh	FSR from 2006 /37/

Total Investment	$470,253,643 USD	Actual cost values submitted to the crediting banks /34/
Annual Operation Costs	$10,439,915.89 USD	Maintenance & spare parts: FSR from 2006 /37/ (table 9.2) Staff & labour: EIA report Insurance & security: estimate of 1% of the investment cost /45/
Loan	Confidential USD	Loan Agreement /44/
Loan Period	10 years	Loan Agreement /44/
Electricity Sales Price	0.073 USD/KWh	"Renewable Energy Law" number 6094

By means of transparent calculations displayed in the workbook, it is demonstrated that the internal rate of return on equity for Alkumru HPP after taxation corresponds to 9.04%. As already discussed, the validation team examined the input parameters, assumptions and any relevant statement accordingly and confirm the accuracy of the calculated parameter. Furthermore, the IRR, which is established in the mentioned manner, for the proposed project activity is consistent with the benchmark, meaning both values are on post tax basis.

Finally the proposed project activity is evaluated as financially unattractive since the estimated IRR, 9.04% is lower than the 12.5% benchmark, which is identified for investments in the energy sector in the republic of Turkey.

Sensitivity analysis was performed by the carbon consultant, showing that the deviation of the 3 key parameters[3], in particular investment costs, operation costs and electricity revenues, by +/- 10% leads to IRR in the range from 7.02% to 12.24%. The detailed elaboration of parameters alteration and its effect on project's IRR is part of the Financial analysis workbook /36/.

- Step 4: Common practice analysis

The common practice analysis act as credibility check to complement the investment analysis and follows the sub-steps identified in the "Tool for the demonstration and assessment of additionality" /4/ and the "Guidelines on Common Practice" v01.0 /41/.

No.	Criteria selected	Determination by the validation team	Criteria justified
1	Geographical scope	As per the additionality tool /4/, the Tigris catchment area, is deemed to be plausible geographical scope for the common practice analysis. It was evidenced that the climatic regime for this region and the water availability are specific and region specific.	☒ Yes ☐ No
2	Technology	Following the "Guidelines on Common Practice", 12 project activity with similar technology were identified, namely hydroelectric power plants with installed capacity in the range 137.76 MW to 413.28 MW, which was commissioned before the	☒ Yes ☐ No

[3] Regarding the „Guidelines on the Assessment of investment analysis" v05 **Error! Reference source not found.**

No.	Criteria selected	Determination by the validation team	Criteria justified
		start date of Alkumru HPP.	
4	Regulatory framework	There is to the knowledge of the Validation Team no regulatory framework in place which grants any kind of incentives for renewable energy projects, besides the Law on Utilization of Renewable Energy Resource, which ensures the guaranteed feed-in tariff, or which stipulates a mandatory requirement to develop those.	☒ Yes ☐ No
5	Investment climate	The identified projects faced different investment climate as 11 of them were developed by the government and therefore were developed considering public benefit rather than purely economic motivations. The only other private project from the initial list is Yedigöze-Saniey HPP, which according to informal sources (statement from its project owner) will be seeking VCS certification, thereby dropping out of the list. Thus, no project is developed in comparable investment climate.	☒ Yes ☐ No
6	Access to technology	Purchase contracts suggest that technology and implementation know-how are commonly purchased from foreign countries.	☒ Yes ☐ No

Therefore, the validation team concludes that Alkumru HPP is not a common practice activity.

- Conclusion

The validation team concludes that the proposed project activity deems financially unattractive, achieving an internal rate of return on equity after taxation of 9.04% whereas the benchmark for similar activities in the host country is 12.5%.

3.2.6 Quantification of GHG Emission Reductions and Removals

As it has been identified in section 3.2.1, emission reductions and removals resulting from Alkumru HPP are identified according to the selected CDM methodology ACM002 v13.0.0 /2/ and the relevant methodological tool “Tool to calculate the emission factor for an electricity system” v02.2.1 /3/.

- Quantification of baseline emissions

In order to determine the baseline emissions, the combined margin (CM) is calculated based on the “Tool to calculate the emission factor for an electricity system” v02.2.1 /3/. The described steps for identification of operating margin (OM) and build margin (BM) and all relevant assumptions are sufficiently documented within the VCS PD /50/ and displace. The choice of data vintage and calculation methods are justified in a readily comprehensible manner. All calculation on OM, BM and CM are performed by means of excel file and the resulted workbook on emission reduction calculation v2 /46/ was provided to the validation team for validation. The mentioned workbook is explored, data sources are examined and calculations are repeated in a separate workbook. Consequently, following issues are observed:

- All implemented data are referenced and based on reliable sources;

- Workbook cells are traceable and the calculations are presented in transparent and unbiased manner;
- The most recent available data are applied;
- Calculations are performed in complete accordance with the mentioned tool.
- The ex-ante data vintage has been selected for both the OM and BM calculation.

Finally the OM emission factor is determined as EFgrid,OMsimple = 0.65613 tCO_2/MWh and BM emission factor as EFgrid,BM = 0.42357 tCO_2/MWh, which by applying the default values for weighting on OM and BM (i.e. wOM=0.5 and wBM=0.5) result in combined emission factor EFgrid,CM= 0.53985 tCO_2/MWh. Upon the experience of the validation team on emission factor, the determined value is realistic and comparable to similar projects in the host country.

As per ACM0002 v13.0.0, baseline emissions (BEy) are the product of net electricity generation that is produced and fed into the grid as a result of the CDM project (EGPJ,y) and the combined margin CO2 emission factor for the year y (EFgrid,CM,y).

The formular BEy = EGPJ,y * EFgrid,CM,y results in 472,824 tCO_2/year for Alkumru HPP until end of 2013, and 475,723 tCO_2/year for Alkumru HPP from 2014 onwards.

- Quantification of project emissions

In general, but not always, renewable power generation project are considered to have no emissions, thus PE_y=0. The selected approved methodology ACM0002 v13 suggests that total project emissions are determined as following

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y,}$$

Where

PE_y – project emissions in year y [tCO2,eq/year]
$PE_{ff,y}$ – project emissions from fossil fuel consumption in year y
$PE_{GP,Y}$ – project emissions from operation of geothermal power plant due to the release of non-condensable gases in year y
$PE_{HP,y}$ – project emissions from water reservoirs of hydro power plant in year y.

Since Alkumru HPP is a hydroelectric power plant with a single water reservoir, the project emissions from water reservoir has to be determined. The annual project emissions due to water reservoirs is based on the power density of project activity, which for the current project was estimated to 25,0 W/m^2, which is > 10 W/m^2 benchmark. Thus, according to the approved methodology ACM0002 projects emissions for the proposed project is $PE_{HP,y}$ = 0.

Validation team realized that power density is determined as per ACM0002 v13.0.0. Furthermore Mrs. Özçelik explained that the area of the reservoir is determined at maximum water flow.

According to the methodology “the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected”, i.e. $PE_{FF,y}$ = 0

Thus the emissions from the proposed project activity, as estimated for the first crediting period, are assumed to be $PE_y = 0$.

- Quantification of leakage

The proposed project is a green field one, thus no leakage emission related to the project are expected and regarded.

- Summary of GHG emission reductions or removals

Following methodology ACM0002 v13.0.0 GHG emission reductions from Alkumru HPP are calculated as:

$ER_y = BE_y + PE_y$ (where ER_y = emission reductions in year y; BE_y = baseline emissions in year y and PE_y = project emissions in year y)

In the particular case the emission reduction corresponds to $ER_y = BE_y$ = 472,824 tCO_2/year for Alkumru HPP until end of 2013, and 475,723 tCO_2/year for Alkumru HPP from 2014 onwards.

The validation team confirms that the emission reduction calculations are performed properly, by applying approved CDM methodology ACM0002 v13.0.0, which is accepted by the VCS standard. The proposed project is proved to fulfil all eligibility criteria listed under the methodology. Furthermore, considering the experience of the validation team with renewable electricity generation projects, the estimated annual GHG emission reductions are assessed as reasonable.

3.2.7 Methodology Deviations

The validation team assessed the proposed project activity and related project description in detail and witnessed that the selected methodology and methodological tools are implemented accurately without any deviations.

3.2.8 Monitoring Plan

The monitoring plan for the proposed project activity is an essential part of the validation process and basis for the verification of the GHG emission reductions.

- Data and parameters available at validation

The following six parameters are used for the calculations of emission reduction created by the Alkumru HPP and are available at the time of project validation.

- $FC_{i,y}$ – amount of fuel i consumed by relevant power plant in Turkey in years 2008, 2009, 2010
- $NCV_{i,y}$ – net calorific values for fossil fuel type i in years 2008, 2009, 2010
- $EF_{CO2,i,y}$ – CO_2 emission factor of fossil fuel type i in year y
- EG_y – net electricity generated in the project electricity system in year y
- $EG_{m,y}$ – net electricity generated and delivered to the grid by power unit m in year y
- $\eta_{m,y}$ - Specific electrical efficiency for all relevant energy sources (natural gas, lignite, coal/anthracite, fuel/motor oil).

As it has been already mentioned, the operating emission factor and the build emission factor are calculated ex-ante. Therefore, the applied parameters are determined or/and monitored once per crediting period.

In line with the approved methodology ACM0002 /2/, the parameters are listed in the VSC PD /7/, together with the applied value, source of data and justification of data/description of measurement methods and procedures. The list is determined to be exhaustive, providing important information and guarantee on data consistency and reliability.

- Data and parameters monitored

The ex-post parameters, which are applied for the determination of the project emissions and the emission reductions, are subject to regular measurement, namely once per monitoring period. In the case of the proposed project, four parameters are included in the monitoring plan, i.e.

- $EG_{PP\text{-}self\ consumption,y}$ – quantity of electricity imported by the power plant from the grid for self-consumption in year y;
- $EG_{PP\text{-}GROSS,y}$ – quantity of electricity produced by the power plant in y,
- Cap_{PJ} – installed capacity of the hydropower plant after the implementation of the project activity;
- 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.

Whereas $EG_{PP\text{-}self\ consumption,y}$ and $EG_{PP\text{-}GROSS,y}$ are the actual parameters that are measured, the parameter that is used in further calculations is $EG_{PP.net,y}$:

- $EG_{PP.net,y}$ – net electricity generation by the power plant, where $EG_{PP.net,y} = EG_{PP\text{-}GROSS,y} - EG_{PP\text{-}self\ consumption,y,}$

Description of measurement for each of the identified parameters and procedures to be applied is included in the monitoring plan. The PO is aware of its obligation to archive the recorded data for at least two years after the last crediting period and has included this in the monitoring plan.

It is indicated in the VCS PD and confirmed during the site inspection by Mr. Kasim Eren that the net electricity generation is measured continuously by three main and three back up electricity meters and recorded on monthly basis. The installation, calibration and maintenance of monitoring devices is under the responsibility of the TEIAS, and is required to comply with The ICE/TSE 62053-22: Electricity metering equipment (a.c) – Particular requirements - Part 22: Static meters for active energy (Classes 0,2 S and 0,5 S) /52/. Records on electricity generation could be cross-checked with the PMUM database and the SCADA system, which delivers information only on the gross electricity generation.

In summary, the validation team is convinced of compliance of the monitoring plan with the requirements of the selected approved methodology ACM0002. During the site inspection, the validation team experienced that the monitoring arrangements described in the monitoring plan are feasible within the project design.

3.3 Environmental Impact

Environmental Law No. 2872 (Issued in 1983), Annex 2 of Environmental Impact Assessment (EIA) Regulation defines that a run-of-river hydro power plant with installed capacity more than 50MW is subject to complete full EIA. Thus, the Alkumru HPP has gone through the full EIA process and was granted the EIA affirmative certificate /19/ on 15/08/2008.

Possible environmental impacts during the construction and operating phases are summarised in the VCS PD. Furthermore it is emphasized that the minimum ecological flow of the river is maintained. The EIA report concludes that the implementation of the project is expected to have only minor impact on the surrounding environment and regional ecology.

During the onsite visit the validation team could observe that a fish ladder has been built and that the reservoir and river is supporting aquatic life (100,000 fish have been released into the reservoir).

3.4 Comments by stakeholders

It is the validation team's opinion that the local stakeholders were accurately identified and appropriate invited to the stakeholders' meeting which took place on 25/10/2007 at the public education center of the Aydinlar Town of Siirt. The validation team was provided with the minutes from the meeting /47/ and the English translation is included in the VCS PD /50/.

Records of the LSC meeting show that 62 locals participated to the meeting and expressed their opinion on the project and concerns about its impacts on the river regime. The comments from the participants were mainly about expropriation and the associated compensation, social demands (employment opportunities, rental of earth movers) and the use of explosives for the construction of the dam and related noise and dust impacts. Due response to the raised issues was provided. Furthermore, it was explained that no harm to existing vegetation and crop was expected, moreover, it is a possibility that the reservoir would attract more wildlife and could potentially support crops that could not be grown in the area previously.

During the site inspection, the validation team experienced high involvement of the PO to ensure good relationship to the local stakeholders and willingness to assist them in any reasonable manner.

4 VALIDATION CONCLUSION

Limak Hidroelektrik Santral Yatirimlari A.Ş.
Hafta Sokak No:9 G.O.P
Cankaya, ANKARA
Türkiye

14/012/2012

RE: Validation Statement – Alkumru Hydroelectric Power Plant, Turkey under VCS, first crediting period from 10/03/2011 to 09/03/2021.

Limak Hidroelektrik Santral Yatirimlari A.Ş.with registered office at Hafta Sokak No:9 G.O.P, Cankaya, ANKARA, Türkiye, has contracted TÜV Rheinland to review and validate the VCS PD and all assertions related to the GHG project under VCS v.3.3. The GHG assertions, indicated in the VCS PD v2.1 /50/ issued on 10/12/2012 indicate average annual achievable GHG emission reductions of 475,143 t CO_2e per annum.
By generating electricity using renewable resources, the project results in reductions of GHG emissions by partially displacing the electricity that would have been generated using fossil fuels. Investment analysis demonstrates that the proposed project activity is neither the financially attractive nor 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 validation of the GHG assertion is conducted in accordance with the requirements of the VCS standard v3.3, the standard ISO 14064-3 and the approved UNFCCC methodology ACM0002, v13.0.0 to a reasonable level of assurance by applying a materiality threshold of 1%. In the course of the validation process, VCS PD, substantiations and any additional supportive documents are reviewed and reflected in Chapter 2.2 in the validation report issued on 14/12/2012.

The validation team came to the conclusion that based on our review and all available documentation the GHG assertion is made in accordance with the requirements of the VCS program and is material correct and fairly represents the GHG emissions data and information without material discrepancies.

Cologne 14/12/2012

Roland Wollenweber Andrea Nüsse

5 ANNEX

5.1 Validation requirements (based on the VCS standard v3.3 and VCS programme guidance v3.4)

Checklist question	Ref.	MOV[4] DDR	MOV[4] IVS	MOV[4] IC	Findings, comments, references, data sources	Documents to verify	Actions to take	Draft conclusion	Final conclusion
1. VCS Project Description Document									
1.1. Is the VCS PD presented for validation based on the latest template available at the VCS website? *Indicate Yes / No answer and describe all inconsistencies in the Table 2 accordingly.*	VCS PD	X			Yes, the latest VCS PD template version 3.1 (issued 4 Oct 2012) has been used for the Alkumru PD.	/7/ /38/ /50/		OK	OK
1.2. Has the VCS PD been established in accordance with the VCS requirements for completing VCS PD issued by the VCS Association?	VCS PD	X			The template has been completed in accordance with the current VCS requirements.	/7/ /38/ /50/		OK	OK
2. Project Description									
2.1. Does the VCS PD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	VCS PD	X	X		The project is clearly described in chapter 1 of the VCS PD. The main information (installed capacity, location, technology applied) were confirmed during the onsite assessment as well as through the desk review. The names of the project, the project owner and the carbon consultant are clearly identified in the PD and correspond with the submitted evidence documents.	/7/ /13/ /39/ /50/		Ok	OK
2.2. In the case of green-field project activity, is the project design described sufficiently by means of specifications, drawings and manuals? *Provide Yes/No answer and indicate the documents*	VCS PD	X	X		Yes, the project is a green-field project activity, which could be confirmed during the onsite visit. The description chapters 1.1 and 1.8 of the PD are clear and supported by appropriate drawings.	/7/ /50/		OK	Ok

[4] MoV = Means of Verification, DDR = Desk Document Review, IVS = Issues to verify on site, IC = Issues to clarify

which have been reviewed in relation to the issue.									
2.3. Does the project activity reflect current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country? *Provide the description of how validation has been carried out and what comparisons have been made.*	VCS PD	X	X		The project uses three vertical and one horizontal francis turbine, which are commonly used for hydroelectric power production. During the validation the feasibility study /30/ and the information (drawings etc) in the PD were reviewed.	/7/ /30/ /50/		OK	Ok
2.4. In cases where the project activity involves the alteration of an existing installation or process, does the VCS PD provide a clear description of the differences between the project and the pre-project scenario? *Please, provide Yes/Now answer and update Table 2 if there is anything unclear in the provided description.*			X		Not applicable. The project is a greenfield project as validated under 2.3.			OK	Ok
2.5. Does the project grouping apply for the proposed project? If yes, does the VCS PD include a description of one central GHG information system and controls associated with the project and monitoring?		X	X		Not applicable. The project is not part of a a grouped project activity.			OK	Ok
2.6. Does the central GHG information system and controls include items identified in ISO14064-3:2006, clause 4.5?		X	X		Not applicable. The project is not part of a a grouped project activity.			OK	Ok
2.7. How has the sampling been determined? Have any of the sub groups and associated activities within each sub group been considered? Does the sampling meet the requirement set out under IAF Guide to ISO/IEC 66/1999 at a minimum?		X	X		Not applicable. The project is not part of a a grouped project activity.			OK	Ok
3. Project Start Date and Crediting Period									
3.1. Are the project's start date clearly defined and evidenced? Does the project start date meet the requirements as stated in VCS 2007.1 clause 5.2.1? If project grouping is applied, each grouped project shall meet the requirement of VCS 2007.1 clause 5.2.1.	VCS PD 1.5	X		X	The project start date is identified in accordance with the VCS requirements as the date on which the project began generating GHG emission reductions or removals. Evidence to confirm the exact starting date were provided.	/5/ /50/ /7/ /22/ /23/		ok	ok
3.2. Is the start of the crediting period clearly defined and reasonable?	VCS PD 1.6	X			The start of the creditiong period is clearly defined and coincides with the project's start date. The first crediting period runs for 10 years as prescribed in the VCS standard 3.3. The start as well as the duration of the crediting period is reasonable.	/5/ /7/ /50/		OK	OK

4. Baseline and Monitoring methodology									
4.1. General requirements									
4.1.1 Is the methodology used in the project activity an approved VCS Program methodology or a methodology from a VCS-approved GHG program? Is the selected methodology version still valid?	VCS PD 2.1	X			ACM0002 /2/ and related tools are consolidated CDm references, which are applicable for VCS projects. The latest versions of the methodology has been applied.	/1/ /2/ /3/ /4/		OK	OK
4.2. Applicability of the selected methodology to the project activity									
4.2.1 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? *Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures.*	VCS PD 2.2	X	X		Yes, all applicability criteria referred to in the selected methodology are fulfilled as indicated and justified within the relevant section of the PD. The correctness of the PD specifications, such as number and size of reservoirs, etc have been confirmed during the onsite visit.	/2/ /7/ /50/		OK	OK
4.2.2 Is the selection of the applied baseline and monitoring methodology justified?	VCS PD 2.2	X			The selection of the applied baseline and monitoring methodology has been justified step by step in the relevant section of the PD.	/2/ /7/ /50/		OK	OK
4.2.3 Is the selected methodology correctly quoted in all related documents?	VCS PD	X			The selected methodology and all relevant tools and guidelines are correctly quoted in the VCS PD.	/7/ /50/		OK	OK
4.2.4 Does the VCS PD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? *Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Table 2*	VCS PD	X			Yes, all GHG emission soucres, which according to the methodology could result from the project activity have been indicated and discussed in the VCS PD. Emissions from the reservoir (power density > 10 W/m2) and the auxiliary diesel generators have been identfied as negligible as per ACM0002.	/2/ /7/ /50/		OK	OK
4.3 Project boundary									
4.3.1 Does the VCS PD correctly describe the project boundary?	VCS PD 2.3	X			Yes, the project boundary is defined as per methodology	/2/ /7/		OK	OK

Provide Yes/No answer. And amend the Table 2 if needed.					ACM0002 and includes net electricity generates and supplied to the Turkish national grid.	/50/			
4.3.2 Does the VCS PD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	VCS PD 2.3, table 4	X			Project emissions are summarized in table 4, indicating source, gas, consideration and justification.	/2/ /7/ /50/		OK	OK
4.3.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?					Not applicable.			OK	OK
4.4 Baseline identification									
4.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the VCS PD?	VCS PD 2.4	X			The baseline scenario is prescribed by the selected methodology and has been adopted accordingly for the proposed project, i.e. "Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations."	/3/ /7/ /50/		OK	OK
4.4.1.1 Is the identified baseline scenario plausible?	VCS PD 2.4	X			The identified baseline scenario is the only prescribed by the selected approved methodology, and thus regarded as plausible.	/3/ /7/ /50/		OK	OK
4.4.1.2 Are all assumptions stated in a transparent and conservative manner?	VCS PD 3	X			The conservativeness principle was followed firmly and, thus, assumptions and calculations are transparent and stated in a conservative manner.	/7/ /50/		OK	OK
4.4.2 Does the selected methodology require the use of tools and does VCS PD reflects that correctly?	VCS PD 2.1	X			The selected approved methodology refers to three 3 methodology related tools which are accordingly listed and used for the assessment of the project.	/1/ /2/ /3/ /4/ /7/ /50/ /40/		OK	OK

4.4.2.1 Were all the tools applied correctly?	VCS PD	X			The tool to calculate the emission factor for an electricity system, version 02.2.1 has been followed to calculate the combined margin (CM) emission factor. The tool was followed stepwise; for the calculations corrections were requested.		See CL 1, CAR 1	Ok	Ok
4.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered and have no reasonable alternative scenario been excluded?	VCS PD	X			The baseline scenario is prescribed by the methodology. As it is a greenfield project. There is no other alternative to the project apart from the selected baseline scenario.	/2/ /7/ /50/		OK	OK
4.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	VCS PD	X			There is only one option of the baseline scenario for greenfield projects.	/2/ /7/ /50/		OK	OK
4.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the VCS PD and other reference sources?	VCS PD	X			The identified baseline scenario is reasonable, follows the methodology (ACM0002) and is described in section 2.4 of the VCS PD.	/2/ /7/ /50/		OK	OK
4.4.5 Does the VCS PD describe how the national and sectoral policies relevant to the baseline scenario have been identified and considered in the VCS PD?	VCS PD	X			The consistency of baseline scenario with mandatory laws and regulation was discussed. It was concluded that the baseline scenario is in compliance with all relevant national and sectoral policies. A list of all relevant policies is given in Annex 1 of the VCS PD:	/7/ /50/		OK	OK
4.4.6 Does the VCS PD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the project activity?	VCS PD	X			The baseline scenario is sufficiently described.	/7/ /50/		OK	OK
4.5 Algorithm and/or formulae used to determine emission reductions									
4.5.1 Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner?	VCS PD	X	X		The selected methodology and tool are followed stepwise for the calculation of emission reductions. All applied data are presented in transparent and traceable manner.	/2/ /7/ /50/		OK	OK
4.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	VCS PD 3	X	X		The selected methodology as well as the relevant tool provide different options, and it is PP choice which is most appropriate and adequate for	/2/ /7/ /50/		Ok	Ok

					the proposed project activity. Each decision is sufficiently substantiated.				
4.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed VCS project activity and conservative?	VCS PD 3 & 4	X	X		Emission reduction calculations, i.e. OM & BM emission factors, are performed ex-ante, thus following parameters are determined once per monitoring period, i.e. FC(i,y), NCV(i,y), EF(co2,i,y), EG(y), EG(m,y) and η(m,y). Applicability, source and description, etc. of each implemented parameter are listed in a table.	/2/ /7/ /50/		Ok	Ok
4.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the VCS PD for these data and parameters reasonable?	VCS PD 3 & 4	X	X		Four parameters have been identified to be demand monitoring, namely EG(pp-self consumption, y), EG(pp-gross, y), Cap(pj), AP(j). The estimates for these paramters are reasonable based on the available information.	/7/ /50/		Ok	Ok
4.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the VCS PD?	VCS PD	X			The VCS PD does not identigy specific major risk to the emission reduction estimates. Natural project risks are the water flow and precipitation levels. The final performance of the project will need to be assessed during the verification.	/7/ /50/		OK	OK
4.6 Leakage									
4.6.1 Has the leakage been identified and calculated according to the approved methodology?	VCS PD	X			As suggested by the selected methodology (ACM0002) leakage CO2 are determined by the relevant tool. However in the case of most renewable energy, incl. HPP. leakage emissions can be neglected as per the prescribed methodology.	/2/ /7/ /50/		Ok	OK
4.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?					Not applicable.			Ok	OK
4.6.3 Are uncertainties in the leakage emission estimates properly addressed?					Not applicable.			OK	Ok

5. Additionality									
5.1 Identification of alternatives									
5.1.1 What additionality tool has been selected in the VCS PD? Does it comply with the requirement of VCS 2007.1 clause 5.8 and the latest FAQs at VCS website? (http://www.v-c-s.org/faq.html)	VCS PD 2.1	X			Tool for the demonstration and assessment of additionality, ver.6 is the tool suggested by the selected methodology. The latest version of the tool is applied.	/4/ /7/ /50/		OK	Ok
5.1.2 Does the VCS PD identify and list credible alternatives to the VCS project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	VCS PD 2.5	X			The only realistic and credible alterantive scenario to the project activity has been identified as the "Continuation of the current situation, without any project undertaken".	/7/ /50/		OK	Ok
5.1.3 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a VCS project activity?		X			The financial analysis assess the investment in the project activity without it being registeres as a VCS project. The results shows at it is financially not attractive without the carbon revenues.	/36/		OK	Ok
5.1.4 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? *Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.*	VCS PD 2.5	X	X		Yes, the DOE agrees that the only realistic and credible alternative is the continuation of the current situation without the project activity taking place.	/7/ /50/		OK	Ok
5.1.5 Is the exclusion of the alternatives for legal reasons justified? *Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.*					Not applicable.			OK	Ok
5.2 Investment Analysis									
5.2.1 Are all sources of revenues (including savings) have been considered in the VCS PD and all calculations?	VCS PD 2.5	X	X		Earnings from the electricity generation are expected to be the only revenue from the proposed project activity.	/36/		OK	OK
5.2.2 Is the type of investment analysis selected correctly in the VCS PD?	VCS PD 2.5 Step 2	X			The benchmark analysis is selected and justified as an appropriate investment analysis method for the proposed project	/36/		OK	OK

5.2.3 Is the selected financial indicator chosen and applied correctly?	VCS PD 2.5 Step 2	X			IRR on equity is selected as financial indicator and applied correctly. IRR on equity is determined on a post-tax base, which is also the assumption of the selected benchmark.	/36/		OK	OK
5.2.4 Is the guidance on IRR calculation and assessment correctly applied? *Note: Means of validation should be recorded.*	VCS PD 2.5	X			Latest version of guidance on IRR calculation is implemented for the calculation of the IRR and performance of analysis.	/36/		OK	OK
5.2.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?	VCS PD 2.5	X			Most of the values for the financial analysis have not been taken from the FSR as the period between FSR date and investment decision was almost two years. Traceable, most up to date information at the time of investment haven been used in the investment decision.	/34/ /36/ /37/		OK	OK
5.2.6 Are all the values consistent between FSR and VCS PD and are inconsistencies properly justified?	VCS PD 2.5	X			The values used from the FSR are consistent between FSR and VCS PD. The decisions for choosing values from other sources are reasonable.	/7/ /37/ /50/		OK	OK
5.2.7 Were all the values from FSR applicable and valid at the time of the investment decision?	VCS PD 2.5	X	X		Not all the values from the FSR were valide at the time of investment decision in which case more up to date information has been used.	/34/ /36/ /37/		OK	OK
5.2.8 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have lead to a change in the benchmark?	VCS PD 2.5	X	X		Selected approach, benchmark analysis, identify the lowest level of return on equity for the energy sector, and since IRR on equity for the proposed project activity is lower than the benchmark it is reasonable to assume that the project is financially unattractive.	/7/ /50/ /36/		OK	OK
5.2.9 Is the Investment Analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB?	VCS PD 2.5	X			The investment analysis is based on the latest version of Tools for the demonstration and assessment on additionality and in compliance with the latest Guidelines on assessment of investment analysis	/4/ /7/ /50/		OK	OK

5.3 Barrier analysis - N.A. as per Tool, since investment analysis identifies proposed project as financially unattractive									
5.3.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?					Not applicable			OK	OK
5.3.2 Do the listed barriers exist and is their existence substantiated? Note: (a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or (b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?					Not applicable			OK	OK
5.3.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?					Not applicable			OK	OK
5.4 Common practice analysis									
5.4.1 Does the additionality tool require common practice analysis for the project?	VCS PD 2.5 Step 4	X			Additionality tool requires the performance of common practice analysis for the proposed project. Thus the analysis is performed in accordance with Guidelines on Common Practice (version 01)	/41/		OK	OK
5.4.2 If the PPs claim in the VCS PD that VCS project activity is the “first of its kind”, is it justified?	VCS PD 2.5 Step 4	X			It is not claimed that the project is the "first of its kind".			OK	OK
5.4.3 Are the geographical scope of the project activity identified correctly?	VCS PD 2.5 Step 4	X			The geographical scope,the Tigris catchment area, is deemed to be plausible geographical scope for the common practice analysis.			OK	OK
5.4.4 Does the VCS PD provide an explanation why this region was selected and deemed more appropriate and is this explanation traceable and reliable?	VCS PD 2.5 Step 4	X			Yes, the climatic regime for this region and the water availability are specific and region specific. This information is traceable and reliable.			OK	OK
5.4.5 Are there similar operational project activities, other than VCS activities, “widely observed and commonly carried out” in the defined region? *Note: Use official sources and local and industry expertise.*	VCS PD 2.5 Step 4	X			12 similar operational projects could be identified in the defined region.			OK	OK
5.4.6 In case there are similar commercially operated project activities, other than VCS activities, already “widely	VCS PD 2.5 Step 4	X			There are essential distinction between the 12 similar project			OK	OK

observed and commonly carried out" in the defined region, are there essential distinctions between the VCS project activity and the other similar activities?					activities and Alkumru HPP: 11 of those are operated by the government, thus underlying a different economic climate for decision making; 1 project activity, whilst not yet formally registered, is currently informally seeking VCS registration.				
6. Monitoring plan									
6.1 Are all parameters required by the selected approved methodology or tool identified and listed in the VCS PD?	VCS PD 4	X	X		All relevant parameters are recorded in the monitoring section, including their unit, description, source, monitoring frequency and justification of datas source.	/7/ /50/		OK	OK
6.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?	VCS PD 4	X	X		Description, measurement method and frequency as well as identification of monitoring equipment and explanation of quality of assurance/control procedures are contained within the table. Measurement methods are clearly stated and deemed credible and applicable.	/7/ /50/		OK	OK
6.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	VCS PD 4	X	X		Values of ex-ante parameters are selected correctly. Implemented values are either default values, or ones obtained from reliable sources, such as the TEIAS webpage, etc. Most recently available data are used.	/7/ /50/		OK	OK
6.4 Is the measurement equipment for each parameter described and deemed appropriate?	VCS PD 4	X	X		Measurement equipment is sufficiently described / identified. See 6.2	/7/ /50/		OK	OK
6.5 Is the measurement accuracy addressed and deemed appropriate?	VCS PD 4	X			Measurement accuracy, as well as equipment calibration is addressed and deemes appropriate,	/7/ /50/		OK	OK
6.6 Are procedures in place on how to deal with erroneous measurements and are the corrective actions identified?	VCS PD 4	X			It is pointed out, that TEIAS is responsible for calibration and maintenance of the meters.	/7/ /50/		OK	OK
6.7 Is the frequency of measurement identified and deemed appropriate?	VCS PD 4	X			The frequency of measurement is clearly stated for each parameter in the respective section. Ex-ante data would be measured/ calculated once per monitoring period, whereas parameters which are subject to monitoring, would be monitored	/7/ /50/		OK	OK

					on specific time intervals.				
6.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	VCS PD 4	X			Monitoring plan follows methodology's requirements and assures transparent and unbiased monitoring of project emissions reductions	/7/ /50/		OK	OK
6.9 Are the sampling, measurement methods and procedures defined?	VCS PD 4	X			Yes, see sections above.	/7/ /50/		OK	OK
6.10 Are procedures identified for maintenance of monitoring equipment and installations?	VCS PD 4	X			It is pointed out, that TEIAS is responsible for the maintenance of the meters.	/7/ /50/		OK	OK
6.11 Are the equipment calibration intervals identified and justified?	VCS PD 4	X			The calibration intervals for the meters are clearly defined and in line with the national legislation.	/7/ /50/		OK	OK
6.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	VCS PD 4	X	X		The procedures for day-to.day records handling are identified and reasonable.	/7/ /50/		OK	OK
6.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VCS PD 4	X			Monitoring arrangement and procedure are presented unambiguously within the relevant section of VCS PD.	/7/ /50/		OK	OK
6.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	VCS PD 4	X			The means of implementation described in the monitoring plan are sufficient to ensure that the emission reductions can be reported upon ex post and verified.	/7/ /50/		OK	OK
6.15 Do the PPs make provisions for personnel training needs?			X		It is deemed that no specific personnel trainings are required for adequate monitoring performance. Monthly reading of electricity meters is accomplished together with TEIAS representatives.			OK	OK
6.16 Is the authority and responsibility of overall project management clearly described?	VCS PD 4	X	X		The responsibility and authority of the overall project management and individual tasks are clearly described.	/7/ /50/		OK	OK
6.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	VCS PD 4	X			No unintended emissions are expected to result from the power plant, even during any emergencies.	/7/ /50/		OK	OK
6.18 Are procedures identified for review of reported results/data?	VCS PD 4	X	X		Procedures to triangulate the data records have been identified.	/7/ /50/		OK	OK
6.19 Is the data archiving period for this project	VCS PD 4				It is explicitly declared that all	/7/		OK	OK

activity stated in the VCS PD and appropriate? *Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.*					monitored data records would be kept for at least 2 years after the end of last crediting period. This period is considered appropriate.	/50/			
7. Monitoring of the leakage - Not applicable									
7.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?					Not applicable.			OK	OK
7.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? *Note: local knowledge and sectoral expertise shall also be considered.*					Not applicable.			OK	OK
7.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?					Not applicable.			OK	OK
8. Sustainable development									
8.1 If VCS PD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	VCS PD 6		X		The VCS PD mentions that additional benefits were mentioned during the LSC meeting, namely the potential of more wildlife attracted by the reservoir as well as the possibility to support crops that previously could not be grown.	/7/ /50/		OK	OK
9. Stakeholders' consultation and comments									
9.1 Were the stakeholders identified in appropriate and complete manner?	VCS PD 6	X			Stakeholders were properly identified and included representatives of the Special Provincial Authority (SPA) office, several village heads of surrounding settlements, the Ministry for Environment and Forestry.	/7/ /50/		OK	OK
9.2 Are the identified stakeholders plausible?	VCS PD 6	X			Representatives of different stakeholders' groups were invited and participated in the meeting	/7/ /50/		OK	OK
9.3 Does VCS PD describe the means being used to invite local stakeholder's comments?	VCS PD 6	X			The PD clearly states the means used to invite comments and encourage participation (incl. Announcement on different bulletin boards, minibus service	/7/ /50/		OK	OK

					for the meeting).				
9.4 Were those means appropriate?	VCS PD 6	X			Local stakeholders were invited to physical meeting, which upon the opinion of the VVB is most appropriate, since village residents have restricted access to internet, etc.	/7/ /50/		OK	OK
9.5 Was the project presented to the stakeholders in unbiased manner?	VCS PD 6	X			The meeting minutes indicate that although the participants did not ask specific questions about the environmental impacts the PO addressed these nevertheless.	/7/ /50/		OK	OK
9.6 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?					Not applicable.			OK	OK
9.7 Is a summary of the stakeholder comments provided in the VCS PD?	VCS PD 6	X			A summary of stakeholder comments has been included in the PD. The meeting minutes have been provided to the VVB.	/7/ /50/ /47/		OK	OK
9.8 Has due account of any stakeholder comments been taken by PPs and reflected in the VCS PD?	VCS PD 6	X			PO response to the raised issued is included in the VCS PD.	/7/ /50/ /47/		OK	OK
10. Environmental impacts									
10.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the VCS PD?	VCS PD 5	X			Summary of the possible environmental impacts and their mitigation is included in the PD.	/7/ /50/		OK	OK
10.2 Is an environmental impact assessment (EIA) required for the VCS project activity? *Note: determine by using a review of relevant legislation and local expertise.*	VCS PD 5	X			Yes, according to theEnvironmental Law" No. 2872 (Issued in 1983), Annex 2 of Environmental Impact Assessment (EIA) Regulation (issued in 1993 and revised in 2001), a full EIA is required for projects of mre than 50 MW.	/7/ /50/		OK	OK
10.3 In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the VCS PD?	VCS PD 5	X			Proof of the EIA affirmative certificate has been provided and ist outcome accurately reflected in the VCS PD.	/7/ /50/ /19/		OK	OK
10.4 Does the VCS PD include a brief description of the environmental effects of the project, including transboundary?					Not applicable.			OK	OK
10.5 Are those effects properly addressed in the design of the project activity?					Not applicable.			OK	OK
10.6 Does the project comply with environmental legislation in the host country?	VCS PD	X	X		The project complies with the environmental legislation in the host country. This was also	/7/ /50/		Ok	Ok

					confirmed during the site visit from representatives of the Ministry of Environment and Urban Planning.				

5.2 List of Corrective Action Requests (CARs) and Clarifications (CLs)

CAR	CL	List of Requests for Corrective Action (CAR) and Clarification (CL)			
		Observation (CAR/CL)	**Reference**	**Summary of project owner response**	**Validation team conclusion**
	1	EB 63 p4 - Step 1: "For the purpose of determining the operating margin emission factor, use one of the following options to determine the CO2 emission factor(s) for net electricity imports from a connected electricity system". Please state which option you are using and include them in the calculations if applicable.	VCS PD p36 VCS PD p28	The necessary correction is made, please see version 2.1 of the PDD.	OK, Updated
1		Step 5 on how to calculate the EF(BM) has not been consistently followed. The terminology of the AEG values have been incorrectly used.	VCS PD p36 - last para		Ok, updated
	2	Please provide the calculations for the power density of the reservoir. Then check the values stated for the power density on page 16 (20.79 W/m2) and on page 34 (168 W/m2 and 21.84 W/m2) well as the describtion "the power density if the project activity is greater than 4 W/m2 and less than or equal to 10 W/m2).	VCS PD p16/34	Updated	OK
	3	Sources are needed for the data in Table 1, 3, 6, 7 in annex 2. The current links do not work.	VCS PD Annex 2, p 58/59/62/63	Carbon consultant has shown the correct references during the onsite visit.	Ok

	4	Please provide further information in the monitoring plan on how the net electricity supplied to the grid is to be monitored and how it relates to EG(Self-consumption) and EG(gross).	VCS PD v2 p46	The electricity exported to the grid is directly measured by the meters listed in the PD. These export the produced electricity via the switch Gear station that operates at 154 KV. The turbines satisfy the internal consumption, when they are operational but when they are not operating the electricity for internal consumption is imported over the domestic distribution line that is owned by the distribution company TEDAŞ. The electricity coming via this 33kVA line is also utilized by the work site, which is still operational due to the construction of the 4th additional unit. Therefore in order to seperate the amount of electricity consumed by the power house's internal needs, from that electricity consumed by the work site, there is another meter that is recording the internal consumption. Therefore the meter that belongs to the project owner records the internal consumption. The data recorded by this meter is going to be cross checked against TEDAŞ invoices and against the invoices sent to the construction contractor. This situation is going to continue untill the end of 2013, when the fourth additional turbine will be operational, construction works wll be over and the internal consumption will be supplied via the same electricity transmission line (154 kVA) that both the exports and imports are going on, but only two of the meters will be measuring the internal consumption.	OK FAR1 - Validate the new situation when the 4th turbine has been completed and internal consumption will be satisfied through teh 154 kVa transmission line instead of the TEDAS line.
	5	Please provide more detailed information on the stakeholder participation: Participant list, list of comments, how are the comments addressed?	VCS PD p54	a translation of the meeting minutes and the list of signatures and attnndants have been provided to elaborate that section.	Ok
	6	Please provide the Feasibility Study Report from Oct 2006 & Feasibility Study Report from Oct 2012..	VCS PD p3/4/5	Provided	OK Both provided.
	7	In "Table 1: Milestones" (and later on) March 10, 2011 is mentioned as the starting date of the electricity generation. Please provide documents for evidence.	VCS PD v2 p3 etc	Please see the attached substantial acceptance for the first two units.	OK provided
	8	Please state the exact date of investment decision and provide evidence to support this date.		This is the date when the project owner sent that e-mail to the bank with investment parameters. June 6 2008.	OK
	9	Please provide a copy of the loan agreement.	VCS PD v.2 page 20	Please see it attached	Ok

5.3 List of forward action requests (FARs)

FAR	Reference	Summary of project owner response	Validation team conclusion
Validate the new situation when the 4th turbine has been completed and internal consumption will be satisfied through the 154 kVa transmission line instead of the TEDAS line.			