

VALIDATION REPORT

NIKSAR HYDROELECTRIC POWER PLANT, TURKEY



Document prepared by TÜV Rheinland Energie und Umwelt GmbH

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Summary:

TÜV Rheinland Energie und Umwelt GmbH is contracted for the validation of the Niksar HPP with total expected installed capacity of 40.16 MW_e 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 03.0.0, the “Tool for the demonstration and assessment of additionality” version 07.0.0 and further CDM guidelines.

During the desk review, the VSC PD, the emission reduction calculations workbook, the investment analysis workbook and other supporting evidence were assessed and resulted in a list of Clarification and Corrective Action Requests (CL/CAR included as Annex 2). The on-site visit was conducted on 6 & 8 April 2013 and provided clarification on the 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 a positive opinion. The GHG emissions data and information are fairly represented without material discrepancies and the declared GHG emission reductions are materially correct.

The VVB identifies the Niksar HPP project to be eligible to VCS Standard v3.3 requirements and additional in accordance with the CDM methodology ACM0002 version 13.0.0.

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1 INTRODUCTION

1.1 Objective

This report summarises the outcomes of the validation assessment of the Niksar Hydroelectric Power Plant Project (HPP) in Turkey, against requirements of the VCS standard version 3.3, CDM Methodology ACM0002 version 13 and associated tools provided to ensure consistency in project operations, monitoring and reporting.

The validation is an independent third party assessment of the project design, as documented in the VCS project description (VCS PD), emission reduction calculations and monitoring plan. In particular, the VVB ensures that the VCS PD, including the monitoring plan, additionality analysis and emission reduction calculations are elaborated in a comprehensive, accurate and credible manner and meets the identified criteria.

The validation process is a requirement for all VCS projects and is seen as a prerequisite to provide assurance to stakeholders of project's quality and intended amount of voluntary emission reductions to be generated by the project activity.

The project shall be validated for an initial crediting period of 10 years (24/05/2012 – 23/05/2022) 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

The validation scope is defined as an independent and objective review of the project description (VCS PD), which includes among others the assessment of monitoring plan, emission reduction calculations and additionality analysis.

The validation is performed in compliance with VCS criteria stated in the VCS standard v3.3 /1/ and VCS program guide v3.4 /2/. In addition to the VCS requirements, the project must comply with the criteria set out in the approved methodology ACM0002 'Consolidated baseline methodology for grid-connected electricity generation from renewable sources' version 13.0.0 /5/, the methodological tools 'Tool to calculate the emission factor for an electricity system' v03.0.0 /6/ and 'Tool for the demonstration and assessment of additionality' v07.0.0 /7/ as well as the 'Guidelines on the assessment of investment analysis' v05 /9/, all which the VCS PD /12, 69/ refers to.

The validation is not meant to provide any consultancy services to 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 /69/, dated 17. April 2013, 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 5% is applied for identification of material omissions as required by VCS v3.3 /1/ for projects that achieve GHG emission reductions of less than or equal to 300,000 tonnes of CO₂ per year which is the case of Niksar HPP. In general it shall be adhered to the procedures as defined in ISO 14064-3.

1.4 Summary Description of the Project

The Niksar Hydroelectric Power Plant (HPP) project is located on the Kelkit stream, part of the Yeşilirmak catchment, in the Black Sea Region of the Republic of Turkey. Niksar HPP operates as a diversion type run-of-river project with a 12 km long water conveyance canal that transports the water from the weir structure to the powerhouse where the turbines are located. Niksar HPP uses two vertical axes Francis turbines resulting in a total installed capacity of 40.16 MW_e. The reservoir surface area is 164,710 m².

Following an update in Turkish regulations that determined the minimum amount of lifeline water of 10% to be released, the initial water usage agreement /32/ was amended to reflect this change in its final version /34/. The expected annual gross electricity production has been identified as 247,650 MWh in the feasibility report /14/. Based on this value the annual net electricity production has been calculated as 237,025 MWh using the TEİAŞ net/gross production ratio (0.957) at the time of investment decision. As a result of the increase in the amount of lifeline water and the consequent decrease in the water availability for electricity production purposes, the expected annual net electricity production has been lowered to 215,203 MWh. A number of documents showing the calculations for the revised expected electricity production based on the values in the final, DSI approved water usage agreement were presented to the validation team, who deemed the evidence as credible /53/.

The project owner entity has undergone a number of structural changes throughout the project development phase. The licence was initially issued to Selen Elektrik Üretim A.Ş. /28/, part of the IC İçtaş group. The final production licence /30/ identifies the current project owner of Niksar HPP as Niksar Enerji Üretim Ltd. Şti.

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 Niksar HPP has been performed in accordance to the internal procedures of TÜV Rheinland Energie und Umwelt GmbH for validation of VCS projects, which strictly follow ISO 14046-3 and ANSI accreditation to ISO 14065¹.

During the preparation stage the following tasks have been accomplished:

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

- Selection of an appropriate validation team
- Development of the audit plan
- Preparation of a 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 core validation consisted of the following activities:

- 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 PPs submitted the initial version VCS PD /12/ to the validation team along with additional supporting information, in particular the spreadsheets for the calculation of the combined margin grid emission factor /13/ and the investment analysis /11/. The validation team then assessed the documents and submits the desk review findings to the PPs.

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

Table 1: List of reviewed documents

No.	Document	Date submitted
1	VCS Standard, version 3.3 (published 4 Oct 2012)	
2	VCS Program Guide, version 3.4 (published 4 Oct 2012)	
3	VCS Guidance: Validation and Verification Manual (published 4 Oct 2012)	
4	UNFCCC CDM Validation and Verification Manual	
5	UNFCCC ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources", v.13, EB67	
6	UNFCCC "Tool to calculate the emission factor for an electricity system". V.03.0.0, EB 70 Annex 22	
7	UNFCCC "Tool for the demonstration and assessment of additionality", v.07.0.0, EB70 Annex 8	
8	UNFCCC "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", v.02, EB 41 Annex 11	
9	UNFCCC "Guidelines on the assessment of investment analysis", v.05, EB 52 Annex 5	
10	UNFCCC "Guidelines on Common Practice". V1.0, EB 63 Annex 12	
11	Financial Analysis Niksar v.1	21/03/2013
12	VCS PD Niksar HPP, v.1	21/03/2013
13	Emission reduction & EF calculations spreadsheet v.1	21/03/2013
14	Revised Feasibility Report for Niksar HPP (April 2009)	29/03/2013
15	DSI approval letter of the revised Feasibility Report (19 June 2009)	21/03/2013

16	Forest permit (for land use change) by Forest Authority; Right of use for Niksar Enerji Üretim Ltd. Şti.	21/03/2013
18	Letter by EMRA: Licence auction process (26 Oct 2005)	21/03/2013
19	Loan agreement (16 Dec 2009)	21/03/2013
20	Loan repayment plan	21/03/2013
21	Local stakeholder consultation - brochure	21/03/2013
22	Electromechanical equipment (E&M) contract (24 Feb 2010)	21/03/2013
23	EPC contract (2 Nov 2009)	21/03/2013
24	Payment electromechanical equipment (10 March 2010)	21/03/2013
25	TEİAŞ connection agreement (02 Nov 2010) - QA	21/03/2013
26	EIA exemption certificate (22 Nov 2007)	21/03/2013
27	Letter: Extension of EIA exemption for Niksar HPP to Niksar Enerji Üretim Ltd. Şti.(12 Nov 2009)	21/03/2013
28	Generation license (1st version) (05 July 2007)	21/03/2013
29	Amended generation license (2nd version-capacity increase) (21 Sep 2006)	21/03/2013
30	Amended generation license (3rd version-transfer to Niksar Enerji Üretim Ltd Sti) (11 Nov 2009)	21/03/2013
31	Licence fee payment (28 Aug 2006)	21/03/2013
32	Water usage agreement (1st version) (26 March 2006)	21/03/2013
33	Amended water usage agreement (2nd version-capacity increase) (17 Sep 2009)	21/03/2013
34	Amended water usage agreement (3rd version-transfer to Niksar Enerji Üretim Ltd Sti) (28 Oct 2009)	21/03/2013
35	Provisional acceptance confirmation of Unit 1 (08 June 2012)	21/03/2013
36	Provisional acceptance confirmation of Unit 2 (23 May 2012)	21/03/2013
37	Local Stakeholder Consultation meeting - brochure (4 Oct 2007)	21/03/2013
38	Project Introductory File (PIF) (01 Oct 2007)	29/03/2013
39	Pre-EIA report (final design) (01 Sep 2009)	29/03/2013
40	VCS Project Pipeline registration - email confirmation (02 Apr 2013)	03/04/2013
41	Early consideration of carbon revenues - email correspondence	05/04/2013
42	VCS PD Niksar HPP, v.1.01	07/04/2013
43	Financial Analysis Niksar v.1.01	07/04/2013
44	Emission reduction & EF calculations spreadsheet v.1.01	07/04/2013
45	System usage agreement (29 May 2012) - TEİAŞ QA procedures	05/04/2013
46	Local stakeholder meeting - participant list	05/04/2013
47	Local stakeholder meeting - PPT presentation	05/04/2013
48	Local stakeholder meeting - summary document	05/04/2013
49	Registration in VCS Pipeline - email (2 Apr 2013)	03/04/2013
50	PMUM data for Unit 2 (May 2012) - data export	05/04/2013
51	Electricity production summary for 24 May 2012	08/04/2013
52	Construction start date (28 Jan 2010)	07/04/2013
53	Water availability calculations - change in lifeline water	07/04/2013
54	Map of reservoir for surface area - developed by PO (Annex 5)	09/04/2013
55	First reading protocol - change of unit numbers (01 Jun 2012)	09/04/2013
56	First reading protocol - meter testing (10 Apr 2012)	09/04/2013
57	Single line diagram of Niksar HPP	09/04/2013

58	Name plates of turbines - photos	08/04/2013
59	Meter photos (main, back-up)	08/04/2013
60	Diesel generator photos (working hours, fuel consumption, name plates)	08/04/2013
61	Diesel generators - fuel refill records	09/04/2013
62	Yavuz HPP technical information sheet	10/04/2013
63	Niksar weir GPS coordinates	11/04/2013
64	Type and System Approval certificate	11/04/2013
65	Meter calibration records	11/04/2013
66	Diesel generator (weir) technical information	12/04/2013
67	Diesel generator (power house) technical information	12/04/2013
68	Diesel generators - fuel tank capacity information - email	12/04/2013
69	VCS PD Niksar HPP, v2.1 (final version)	17/04/2013
70	Common practice analysis, v.2 (final version)	12/04/2013

2.3 Interviews

During the subsequent on-site visit, the validation team met with the project proponent on the project site to confirm that the actual project conforms to the VCS PD and to discuss the desk review findings.

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

Name	Position/ Organisation	Topic
Ms Fatma Adıgüzel	IC İçtaş Energy, Director	History of project development, financial information, regulation, rules and regulation compliance, sustainability and environmental issues, local stakeholder meeting.
Mr Ufuk Akbulut	IC İçtaş Energy, Hydro Engineering Manager	
Mr Tekin Erdem	Niksar Enerji Üretim Ltd. Şti., Plant Manager	Project design, day-to-day operations, monitoring activities, environmental practices.
Dr Aslı Sezer Özçelik	Carbon Consultant, Ekobil Ltd.	Primary contact for validation
Mr Murat Özçelik	Carbon Consultant, Ekobil Ltd.	

2.4 Site Inspections

The on-site inspection took place on 6 & 8/04/2013 in Ankara and Niksar, Turkey. The objective of the on-site inspection was 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 initial validation protocol (see Annex 5.1) was prepared following the document review. The protocol lists all Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FAR) (see Annex 5.2). The validation protocol has been updated based upon the findings during the site

visit. All CAR/CLs have been resolved by PPs via provision of additional supporting evidence and appropriate changes to the PD.

3 VALIDATION FINDINGS

3.1 Project Design

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

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

On the basis of the VCS PD v2.1 /69/ and additional project specific documents such as the final EMRA production licence /30/, the feasibility report /14/ etc, the project activity is demonstrated to fall within sectoral scope 1: Energy industries (renewable and non-renewable). The project activity is a new hydroelectric power plant (green field) and did not replace any old plant, which was verified onsite, through the interview with the HPP manager as well as the EPC contract /23/.

The project is located in Turkey's Tokat Province. Niksar HPP operates as a diversion run-of-river project with a 12 km long water conveyance canal that channels the water from the weir to the two 100 m penstocks at the powerhouse. Niksar HPP uses two vertical axis Francis type turbines of 20.08 MW_e each resulting in a total installed capacity of 40.16 MW_e. The Niksar HPP has a reservoir with a surface area of 164,710 m² /54/.

The expected net annual electricity generation is 215.203 GWh, which will be supplied to the national grid. Multiplied by the combined margin emission factor, determined ex-ante, the anticipated emissions reductions are 114,753 tCO₂ per year.

During the on-site visit the validation team could confirm that the technology installed at the HPP corresponded to the description of the technology in the VCS PD /12/. The PO and the carbon consultant declared that the plant is not grouped, but a stand-alone project, since it consists of one generation unit (power plant) from single project activity.

In addition, the validation team witnessed that the proposed project activity fulfils VCS program specific issues², namely:

- Handle CO₂, i.e. one of the six Kyoto protocol greenhouse gases
- 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

² Refer to the VCS Standard v3.3 section 2

- Project proponent

Niksar Enerji Üretim Ltd. Şti. is the project owner (PO) and project proponent (PP) as has been stated within the VCS PD /12/ and proven by reference to the final EMRA production licence /30/, and other project-relevant documents, such as the provisional acceptance protocols of the turbine units /35/, /36/. Ekobil Ltd. has acted as the carbon consultant and prepared the VCS PD, and is therefore a project participant.

- Project start date

The start date of the proposed project has been identified as 24 May 2012, based on the provisional acceptance protocol of turbine unit 2 (the first of the two units to become operation) /36/ and the date when electricity was first supplied to the grid as confirmed by the PMUM screenshot of May 2012 /50, 51/. Taking into account the definition of project start date in VCS Standard v3.3 /1/ section 3.7 and the listed evidence /36, 50, 51/, the project start date indicated in the VCS PD v2.1 /69/ as 24 May 2012 is confirmed.

- Project crediting period

The selected project crediting period of 10 years, beginning from 24/05/2012 until 23/05/2022 (both days inclusive), is in compliance with the VCS Standard v3.3 /1/ section 3.8.

- Project scale and estimated GHG emission reductions or removals

The CDM methodology, which is applied to the assessment of project activity, Niksar HPP is classified as large scale project, i.e. project's installed capacity (40.16 MW) is higher than the 15 MW benchmark as defined in the Glossary of CDM terms.

However, in compliance with the VCS Standard v3.3 /1/ and substantiated by the emission reduction calculation /44/, 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 114,753 tCO₂/year, which is below the threshold of 300,000 tCO₂ per annum for large projects. By VCS definition Niksar HPP is therefore subject to a materiality threshold of 5%.

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

Project compliance with the regulation of the host country (i.e. the Republic of Turkey) was demonstrated within the VCS PD /12, 69/, where Annex 1 lists all relevant legally binding regulation. The EMRA Generation Licence /30/ and the EIA exemption certificate /26/ are some of obligatory documents.

- Ownership and other programs

Referring to the EMRA generation licence /30/ and other legal documents, such as the provisional acceptance protocols of the turbine units /35, 36/, the validation team confirms that the project owner is accurately indicated in the VCS PD /12/ as Niksar Enerji Üretim Ltd. Şti.

The interviews with the PP and the Carbon Consultant during the site inspection indicated that, whilst the project was initially planned to be included under VER Plus, the project has not been registered under VER Plus or any 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 (hereafter ACM0002 v13.0.0) /5/ is used to develop the proposed project activity under VCS. In addition, the following methodology related tools and relevant guidelines are applied:

- "Tool to calculate the emission factor for an electricity system". Version 03.0.0
- "Tool for the demonstration and assessment of additionality" Version 07.0.0
- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" Version 02
- "Guidelines on the assessment of investment analysis" Version 05
- "Guidelines on Common Practice" Version 01.0

3.2.2 Applicability

The selected approved methodology ACM0002 v13.0.0 covers large scale project 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 v2.1 /69/, following the applicability criteria listed within the methodology.

The validation team determined the applicability of ACM0002 v13.0.0 /5/ to Niksar 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 /12, 69/ and EMRA generation licence /30/, the project is developed as hydroelectric power plant, which delivers the generated electricity to the Turkish national grid. It was confirmed during the site inspection 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 EPC contract /23/ 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.

Applicability criteria of the methodology ACM0002 v13.0.0	Criteria fulfilled	Determination by the validation team
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 newly installed hydroelectric power plant.
In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects): 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	N.A. Proposed project activity is green-field one.
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/m²	☒ Yes ☐ No	Niksar HPP is a green-field project, i.e. no power plant(s) or reservoir(s) existed at the project site previously. The project activity resulted in new single reservoir, which was confirmed during the site inspection. The power density was calculated and validated as 243.8 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/m ² 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 164,710 m ² at the maximum operational level.

Applicability criteria of the methodology ACM0002 v13.0.0	Criteria fulfilled	Determination by the validation team
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 at the site of the project activity, 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/m².
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.

As all applicability criteria defined within the approved methodology ACM0002 v13.0.0 /5/ are proved to be fulfilled, the validation team deduces that the selected methodology is applicable for the proposed project activity.

3.2.3 Project Boundary

According to the ACM0002 /5/, “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 TEİAŞ connection agreement /25/ states that the hydroelectric power plant is connected to the Turkish national grid and the PMUM information /50/ confirms this. Thus, the project boundary is accurately identified in the VCS PD /12, 69/ as the “net electricity generated and supplied to the Turkish national grid”. Furthermore, emission sources and gases 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 (v.03.0.0)” “.

and accordingly implemented within project description for Niksar HPP, as Niksar 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 v13.0.0/5/

3.2.5 *Additionality*

According to the VCS standard v3.3 /1/ “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” v7.0.0 /7/ and the “Guidelines on the assessment of investment analysis” v05 /9/ are used for the demonstration of additionality of Niksar HPP. As per additionality tool v7.0.0 /7/ 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 likely to be the most financially attractive option, which is not the case.

The date of investment decision, following the CDM methodology, is identified as 15/12/2009, based on an issuance of the EPC contract /23/ which represents the first financial commitment to the project activity by the PO. Shortly afterwards, the loan agreement /19/, dated 16/12/2009, and the E&M contract /22/, dated 24/02/2010, were signed.

- Step 1: Alternatives

In the VCS PD /12, 69/ 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” v07.0.0 /7/ and, adopted for the assessment of additionality of Niksar 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 /12, 69/ and thus recognised as a 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 /9/. Since the Republic of Turkey is not included in this table, the 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 /9/, 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 Niksar HPP /11, 43/ 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 turn-key EPC contract /23/, and the loan agreement /19/ 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. The maintenance costs are based on the information in the revised Feasibility Report /14/ which were the most up to date information at the time of investment decision.

During the site visit the validation team learned that the expected electricity production identified in the revised FSR (Apr 2009) /14/ is based on out-of-date water flow values. Between the initial water usage agreement (2006) /32/ and the final version of the water usage agreement (Oct 2009) /34/ the legal obligations for the lifeline water have changed, leaving a considerable lower amount of water available for electricity production. Based on the updated water flow values, the expected electricity production has been recalculated, the result on which the investment decision (Dec 2009) /23/ was based. Evidence to support this claim has been presented to and deemed credible by the VVB. The financial analysis was updated accordingly.

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

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

Parameter	Validated value	Means of verification
Installed Capacity	40.16 MW _e	Final generation licence Nov 2009 /30/
Expected Annual Electricity Generation	215,203 MWh	Revised FSR April 2009 /14/ Final Water Usage Agreement /34/ PO's own water availability calculations /53/ based on values from /34/
Total Investment	Confidential	EPC contract /23/
Annual Operation Costs	Confidential	Revised FSR April 2009 /14/ Own calculations for labour cost based on the FSR/14/
Loan	Confidential USD	Loan Agreement /19/
Loan Period	12 years	Loan Agreement /19/
Electricity Sales Price	0.073 USD/KWh	Price Guaranteed by the renewable energy law number 5346

By means of transparent calculations displayed in the workbook /43/, it is demonstrated that the internal rate of return on equity for Niksar HPP after taxation corresponds to 8.80 %. 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 comparable to the benchmark, as both values are on a post-tax basis.

Finally the proposed project activity is evaluated as financially unattractive since the estimated IRR, 8.80 % 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 (investment costs, operation costs and electricity revenues) by +/- 10 % leads to IRR in the range from 6.9 % to 11.8 %. The most influential factor is the investment cost. However, as this cost factor is based on the real costs prescribed in the turnkey EPC contract, the accuracy of this factor is high and is flexibility low. The detailed elaboration of parameters alteration and its effect on project's IRR is part of the financial analysis workbook v1.01 /43/.

- Step 4: Common practice analysis

The common practice analysis acts as credibility check to complement the investment analysis and follows the sub-steps identified in the "Tool for the demonstration and assessment of additionality v.07.0.0" /7/ and the "Guidelines on Common Practice" v02.0 /10/.

No.	Criteria selected	Determination by the validation team	Criteria justified
1	Geographical scope	As per the additionality tool /7/, the Yeşilirmak 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" /10/, three project activities (Yavuz, Çamlığöze, Almus Dam) with similar technology have been identified, namely hydroelectric power plants with installed capacity in the range 20.08 MW to 60.24 MW, which were commissioned before the start date of Niksar HPP.	☒ Yes ☐ No
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	Two identified projects (Çamlığöze and Almus Dam) are government projects which operate in a different investment climate. These project activities are therefore not comparable to Niksar HPP. The third project (Yavuz HPP) with an installed capacity of 22.5 MW is a private project and is not receiving carbon revenues. However, the unit cost (cost per MW) of Yavuz is less than half of the unit cost per MW of Niksar HPP therefore this project is also	☒ Yes ☐ No

No.	Criteria selected	Determination by the validation team	Criteria justified
		considered to be different than the project activity. Thus, no HPP has been developed in comparable investment climate without the consideration of carbon revenues.	
6	Access to technology	The purchase contracts suggest that technology and implementation know-how are commonly purchased from foreign countries.	☒ Yes ☐ No

To sum up, no project activity has been identified as operating in the same investment climate as Niksar HPP without considering carbon revenues.

Following the “Guidelines on Common Practice” v02.0 /10/, there are two requirements to fulfil to deem a project common practice:

1. Factor $F = 1 - N_{diff}/N_{all}$ is greater than 0.2, **and**
2. $N_{all} - N_{diff}$ is greater than 3

As shown in the VCS PD v2.1 /69/ the project neither fulfills requirement (1) ($F = 0 > 0.2$) nor requirement (2) ($N_{all} - N_{diff} = 0 < 3$). Therefore, the validation team concludes that Niksar HPP is not a common practice activity.

- Conclusion

The validation team concludes that the proposed project activity is financially unattractive, achieving an internal rate of return on equity after taxation of 8.80 % whereas the benchmark for similar activities in the host country is 12.5 %.

3.2.6 Quantification of GHG Emission Reductions and Removals

As outlined in section 3.2.1, emission reductions and removals resulting from Niksar HPP are identified according to the selected CDM methodology ACM0002 v13.0.0 /5/ and the relevant methodological tool “Tool to calculate the emission factor for an electricity system” v03.0.0 /6/. Niksar HPP has been proven to fulfil all eligibility criteria required for the methodology.

- Quantification of baseline emissions

In order to calculate the baseline emissions, the combined margin (CM) is determined based on the “Tool to calculate the emission factor for an electricity system” v03.0.0 /6/. The described steps for identifying the operating margin (OM) and build margin (BM) and all relevant assumptions are sufficiently documented within the VCS PD v2.1 /69/. The choice of data vintage and calculation methods are justified in a readily comprehensible manner. All calculation on OM, BM and CM are performed using the excel spreadsheet v1.01 /44/ which has been provided to the validation team for validation. The mentioned workbook is explored, data sources are examined and calculations are replicated in a separate workbook. The following aspects have been closely examined in the process:

- 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 $EF_{grid,OMsimple} = 0.65716 \text{ tCO}_2/\text{MWh}$ and BM emission factor as $EF_{grid,BM} = 0.4093 \text{ tCO}_2/\text{MWh}$, which by applying the default values for weighting on OM and BM (i.e. $w_{OM}=0.5$ and $w_{BM}=0.5$) result in combined emission factor $EF_{grid,CM} = 0.53323 \text{ tCO}_2/\text{MWh}$. The validation team deems the determined value realistic and comparable to similar projects in the host country.

As per ACM0002 v13.0.0, baseline emissions (BE_y) are the product of net electricity generation that is produced and fed into the grid as a result of the project activity ($EG_{PJ,y}$) and the combined margin CO_2 emission factor for the year y ($EF_{grid,CM,y}$).

The formular $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ results in 114,753 tCO_2/year for Niksar HPP.

- Quantification of project emissions

In general, but not always, renewable power generation projects 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 [$\text{tCO}_2, \text{eq}/\text{year}$]

$PE_{ff,y}$ – 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 Niksar HPP is a hydroelectric power plant with a single water reservoir, the project emissions from the water reservoir might have to be considered, depending on the power density of the project activity. For Niksar HPP the surface area is relatively small compared to the installed capacity and the power density is calculated as $243.80 \text{ W}/\text{m}^2$ and therefore exceeds the $10 \text{ W}/\text{m}^2$ benchmark. Thus, according to the approved methodology ACM0002 the projects emissions for the proposed project is $PE_{HP,y} = 0$.

According to the methodology “the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected”. To ensure that the diesel generator has only been used for back up or emergency purposes, the working hours and the respective fuel consumption has been checked during the site visit /60, 61, 68/. It could be confirmed that the emissions from use of the diesel generator result in less than 0.01% of the baseline emissions and can therefore 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 considered.

- Summary of GHG emission reductions or removals

Following methodology ACM0002 v13.0.0 GHG emission reductions from Niksar 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 case of Niksar HPP the emission reduction corresponds to $ER_y = BE_y = 114,753 \text{ tCO}_2/\text{year}$.

The validation team confirms that the emission reduction calculations /44/ have been performed according to the relevant methodology ACM0002 v13.0.0. The validation team deems the estimated annual GHG emission reductions as reasonable compared to similar renewable electricity generation projects.

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 Niksar 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 2009, 2010 & 2011
- $NCV_{i,y}$ – net calorific values for fossil fuel type i in years 2009, 2010 & 2011
- $EF_{CO_2,i,y}$ – 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 /5/, the parameters are listed in the VSC PD v.1 /69/, together with the respective 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.

- $EG_{PP-self\ consumption,y}$ – quantity of electricity imported by the power plant from the grid for self-consumption in year y;
- $EG_{PP-GROSS,y}$ – 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 $EG_{PP-self\ consumption,y}$ and $EG_{PP-GROSS,y}$ 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 $EG_{PP,net,y} = EG_{PP-GROSS,y} - EG_{PP-self\ consumption,y}$

The descriptions of measuring and monitoring for each of the identified parameters are 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 v2.1 /69/ and could be confirmed during the site inspection by Mr Tekin Erdem that the net electricity generation is measured continuously by two main and two back up electricity meter /59/ and recorded on daily basis. The installation, calibration and maintenance of the monitoring devices are under the responsibility of the TEİAŞ, 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). The meters have initially been factory calibrated /65/ on 30/09/2010. A first reading protocol to ensure that the meters work correctly in their current setting has been conducted on 10 April 2012 /56/. Another reading protocol was completed on 1 June 2012 /55/ when the numbers of Unit 1 and Unit 2 was swapped against each other.

In summary, the validation team can confirm the compliance of the monitoring plan with the requirements of the selected approved methodology ACM0002. During the site inspection, the validation team could confirm that the monitoring arrangements described in the monitoring plan are line within the procedures implemented at the power plant.

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 of 50MW or less is exempt from completing a full EIA. Instead, a preliminary EIA providing a general description of the project and project characteristics has to be submitted to the relevant Ministry. After a review of the preliminary EIA, Niksar HPP was granted a verification certificate /26/ stating that “there is no need for an EIA report”.

Possible environmental impacts during the construction and operating phases have been summarised in the VCS PD v2.1 /69/.

Due to the characteristics of the run-of-river hydroelectric power plant, it has been concluded in the preliminary EIA report that the project is environmentally sound and will not have any adverse effects on the environment. Environmental management practices and (hazardous) waste management procedures are in operation at Niksar HPP as was confirmed by the plant manager Mr Tekin Erdem. During the onsite visit the validation team witnessed that a fish ladder has been built and is in operation.

3.4 Comments by stakeholders

A local stakeholder meeting regarding the construction of the greenfield project Niksar HPP was held in Arpaören village, Niksar, Tokat province on 04 October 2007. The meeting was announced in regional and national newspapers. Furthermore, important local stakeholders, including residents from nearby villages, local authorities, the Kaimakam office, etc received personal invitations.

Records /46/ of the meeting show that 45 participants attended the event during which general information on the hydro-electric power plant but also on its environmental impacts and the general concept of climate change were presented /47/. Participants of the meeting that were interviewed during the validation process and the PO stated that the actual number of participants in the LSC exceeded the list of signatories by far. The participants had the chance to ask questions and express their concerns about the project. A questionnaire was distributed among the participants, the result of which stated that the most urgent concern of the local community was (un)employment and poverty as well as the consequences of excessive use of chemicals on the environment. The local stakeholders perceived the presentation as clear and the majority confirmed that they believed the presented information was genuine. The great majority mentioned their support for hydro power as the preferred mean of electricity production.

4 VALIDATION CONCLUSION

Niksar Enerji Üretim Ltd. Şti.
Çetin Emeç Bulvarı 1364. Sok.
No:4 Balgat
ANKARA
Türkiye

18/04/2013

RE: Validation Statement – Niksar Hydroelectric Power Plant, Turkey under VCS, first crediting period from 24/05/2012 to 23/05/2022.

Niksar Enerji Üretim Ltd. Şti. with a registered office at Çetin Emeç Bulvarı 1364. Sok., No:4 Balgat, ANKARA, Türkiye, has contracted TÜV Rheinland to review and validate the VCS PD and all assertions related to the GHG project under VCS Standard version 3.3. The GHG assertions, indicated in the VCS PD v2.1 issued on 17/04/2013 indicate average annual achievable GHG emission reductions of 114,753 t CO₂e per annum.

Generating electricity from renewable energy resources, the project results in GHG emission reductions by partially displacing electricity that would have otherwise been generated using fossil fuels. The 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 therefore 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 5%. In the course of the validation process, the VCS PD, substantiations and any additional supportive documents are reviewed and reflected in Chapter 2.2 in the validation report issued on 18/04/2013.

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 18/04/2013



Andrea Nüsse

5 ANNEX

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

 TÜVRheinland® Precisely Right.	Quality Management				Number: QMA 2.533.02		
					Version: 1.2		
	Table 1: Validation requirements Based on the VCS Standard, version 3.3 (published 4 Oct 212)				Valid as of: 14/01/2013		
					Created by: Wollenweber		
					Approved by: N. Heidelmann		
Checklist question	Ref.	MoV ³			Findings, comments, references, data sources	Draft conclusion	Final conclusion
		DR	I	FA			
1. VCS Project Description Document							
1.1. Is the VCS PD presented for validation based on the latest template available at the VCS website? <i>Indicate Yes / No answer and describe all inconsistencies in the Table 2 accordingly.</i>	/12/	X			Yes, Niksar VCS PD presented to the validation team is based on the latest template published on the VCS website on 4 Oct 2012.		OK
1.2. Has the VCS PD been established in accordance with the VCS requirements for completing VCS PD issued by the VCS Association?	/12/	X			Yes, the VCS PD has been established in accordance with the current VCS requirements.		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?	/12/ /30/ /35/ /36/	X	X	X	The VCS PD contains a detailed description of project activity and the technical aspects of its implementation. Details that could not yet be confirmed by the respective documentation will be validated during the onsite visit.	OK To be confirmed during site visit.	OK
2.2. In the case of green-field project activity, is the project design described sufficiently by means of specifications, drawings and manuals?	/12/	X		X	The project activity is a green-field project. Sections 1.1 and 1.8 provide sufficient information to describe the activity, are supported by drawings and illustrations.		OK

³ 1 MoV = Means of Verification, DR = Document Review, I = Interview, FA = Field Assessment, www = internet search.

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? <i>Provide the description of how validation has been carried out and what comparisons have been made.</i>	/12/ /14/ /35/ /36/	X		X	The project uses two vertical axis Francis type turbines as suggested in the FSR. Francis type type turbines provide the most efficient technology for projects with the given characteristics.		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? <i>Please, provide Yes/Now answer and update Table 2 if there is anything unclear in the provided description.</i>	/12/	X	X		Not applicable as the project is a greenfield project.		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?	/12/	X	X		Not applicable as the project is not part of a grouped project activity.		OK
2.6. Does the central GHG information system and controls include items identified in ISO14064-3:2006, clause 4.5?	/12/	X	X		Not applicable as the project is not part of a grouped project activity.		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?	/12/	X	X		Not applicable as the project is not part of a grouped project activity.		OK
3. Project Start Date and Crediting Period							
3.1. Has the project been listed on the project pipeline before the opening meeting between the VVB and the PP?	/40/	X	X		The project has been listed in the project pipeline before the opening meeting. The electronic submission of the documents was confirmed.		OK
3.2. Are the project's start date clearly defined and evidenced? Does the project start date meet the requirements as stated in VCS v3.3 clause 3.7?	/1/ /12/ /36/ /50/ /51/ /69/	X	X		The VCS PD states the start date as 23 May 2012 in section 1.5. The Provisional Acceptance Confirmation for Unit 2 (which became operational before Unit 1) states a date of 24 May 2012. Clarification and respective documentation have been requested.	See CL 4	The internal records of Niksar HPP electricity production as well as the PMUM data export confirm 24 May 2012 as the first day electricity was supplied to the grid, therefore marking it as the project start date. Changes in the VCS PD have been made accordingly. OK

3.3. Is the start of the crediting period clearly defined and reasonable?	/12/ /34/ /50/ /69/	X	X		The start of the crediting period is clearly defined in section 1.6 and is consistent with the start date of the project. Documentation to confirm this date - in form of a PMUM screenshot from May 2012 - has been requested.	See CL 4	After establishing the starting date as 24 May 2012, it can be confirmed that it is credible and reasonable. 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?	/4/ - /9/	X			The selected methodology ACM0002 and the other tools applied are consolidated CDM methodologies, which are approved under the VCS program to be applied to VCS projects. The selected methodology versions are the latest versions.		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? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures.</i>	/4/ - /9/ /12/ /63/ /69/	X	X	X	Yes, all applicability conditions of the selected methodology and tools have been satisfied. The project is a newly built hydro power station (greenfield project) with one (new) reservoir with a power density exceeding 4 W/M2. The correctness of the PD specifications, such as number and size of reservoirs, etc will be confirmed during the onsite visit.	OK To be confirmed during the site visit.	OK
4.2.2 Is the selection of the applied baseline and monitoring methodology justified?	/5/ /12/	X			The selection of the applied baseline and monitoring methodology has been justified step by step in the relevant section of the PD.		OK
4.2.3 Is the selected methodology correctly quoted in all related documents?	/12/	X			The selected methodology ACM0002, relevant tools and guidelines are quoted correctly in the VCS PD v1.		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? <i>Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Table 2</i>	/5/ /12/ /60/ /61/ /68/	X			Yes, all GHG emission sources that could result from the project activity have been indicated and discussed in the VCS PD. Emissions from the reservoir (power density > 10 W/m2). The auxiliary diesel generators have been identified as negligible as per ACM0002. Their use as emergency electricity supply will be confirmed during the site visit.	OK. To be confirmed during the site visit.	The working hours of the diesel generators and information about the fuel use confirmed that they are only used as emergency back-up and that their emissions contribute less than 0.01% of the total emissions. OK
4.3 Project boundary							
4.3.1 Does the VCS PD correctly describe the project boundary? <i>Provide Yes/No answer. And amend the Table 2 if needed.</i>	/5/ /12/	X			Yes, the project boundary is defined as per methodology ACM0002 and includes net electricity generated and supplied to the Turkish national grid.		OK

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?	/5/ /12/	X			The main gases included in the project boundary are summarized in table 4 of section 2.3, indicating source, gas, consideration and justification.		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?	/5/ /12/	X			Not applicable.		OK
4.4 Baseline identification							
4.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario (incl. the selection of appropriate data sources in accordance with the <i>CDM guidelines for quality assurance and quality control of data used in the establishment of standardized baselines</i>) been applied correctly and documented in the VCS PD?	/5/ /6/ /12/	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."		OK
4.4.1.1 Is the identified baseline scenario plausible?	/5/ /6/ /12/	X			The identified baseline scenario is the only prescribed by the selected approved methodology, and thus regarded as plausible.		OK
4.4.1.2 Are all assumptions stated in a transparent and conservative manner?	/12/	X			The conservativeness principle was followed firmly and the assumptions and calculations are transparent and stated in a conservative manner.		OK
4.4.2 Does the selected methodology require the use of tools <u>and</u> does VCS PD reflects that correctly?	/5/ - /8/ /12/	X			The selected approved methodology refers to three methodology-related tools which are accordingly listed in the VCS PD and used for the assessment of the project.		OK
4.4.2.1 Were all the tools applied correctly?	/5/ - /8/ /12/	X			The tools were followed step by step.		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 <u>and</u> have no reasonable alternative scenario been excluded?	/5/ /12/	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.		OK
4.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	/5/ /12/	X			There is only one option of the baseline scenario for greenfield projects.		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?	/5/ /12/	X			The identified baseline scenario is reasonable, follows the methodology (ACM0002) and is described in section 2.4 of the VCS PD. All assumptions are clearly stated in the relevant places of document.		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?	/5/ /12/	X			The consistency of baseline scenario with mandatory laws and regulation is 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:		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?	/5/ /12/	X			The baseline scenario is sufficiently described. As the baseline is the continuation of the current situation there is no controversy about the technology used.		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?	/12/	X	X		The selected methodology and tool are followed stepwise for the calculation of emission reductions.		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?	/5/ /6/ /12/	X			The selected methodology and the relevant tool provide different options, and it is PPs choice which is most appropriate and adequate for the proposed project activity. In each case all options have been listed and for each decision a transparent and adequate justification has been given.		OK
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?	/12/	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(CO ₂ ,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.		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?	/12/	X			Four parameters have been identified to be monitoring, namely EG(pp-self consumption, y), EG(pp-gross, y), Cap(pj), AP(j). The estimates for these parameters are reasonable based on the available information.		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?	/12/	X			The VCS PD does not identify 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.		OK
4.6 Leakage							
4.6.1 Has the leakage been identified and calculated according to the approved methodology?	/5/ /12/	X			As suggested by the selected methodology (ACM0002) leakage CO ₂ 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		OK

					methodology.		
4.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?					Not applicable.		OK
4.6.3 Are uncertainties in the leakage emission estimates properly addressed?					Not applicable.		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 v3.3 clause 4.6?	/5/ /7/ /12/	X			The "Tool for the demonstration and assessment of additionality" is the tool suggested by the selected methodology ACM0002. The latest version (v07.0.0) of the tool is applied.		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?	/7/ /12/	X			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".		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?	/11/ /12/	X			The financial analysis assesses the investment in the project activity without it being registered as a VCS project.		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? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>	/7/ /12/	X	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.		OK
5.1.5 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	/12/	X			Not applicable.		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?	/11/ /12/	X			Earnings from the electricity generation are expected to be the only revenue from the proposed project activity apart from the carbon revenue.		OK
5.2.2 Is the type of investment analysis selected correctly in the VCS PD?	/7/ /12/	X			The benchmark analysis is selected and justified as an appropriate investment analysis method for the proposed project.		OK
5.2.3 Is the selected financial indicator chosen and applied correctly?	/7/ /9/	X			IRR on equity is selected as financial indicator and applied correctly. IRR on equity is determined		OK

	/12/				on a post-tax base, which is also the assumption of the selected benchmark.		
5.2.4 Is the guidance on IRR calculation and assessment correctly applied? <i>Note: Means of validation should be recorded.</i>	/9/ /11/ /12/	X	X		The guidance on IRR calculation and assessment has been correctly applied.		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?	/11/ /12/ /14/ /19/ /22/ /23/ /24/ /31/ /53/ /69/	X	X		The data in the financial analysis has been sourced from the revised FSR (2009) which has been published within months of the E&M contract and therefore within a reasonably short time. Copies of the respective contracts have been provided which confirm the values applied.		During the site visit it emerged that the expected electricity production identified in the revised FSR (Apr 2009) is based on incorrect water flow values. Between the initial water usage agreement (2006) and the final version of the water usage agreement (Oct 2009) the legal obligations for the lifeline water have changed, leaving a considerable lower amount of water available for electricity production. Based on the updated water flow values, the expected electricity production has been recalculated, the result on which the investment decision (Dec 2009) was based. Evidence to support this claim has been presented and deemed credible by the VVB. OK
5.2.6 Are all the values consistent between FSR and VCS PD and are inconsistencies properly justified?	/11/ /12/ /14/	X			The values used in the financial analysis and the VCS PD are consistent with the values from the FSR, apart from one minor mix-up during the transfer of one number.	See CAR 1	Inconsistencies between the FSR and the values used in the VCS PD have been properly justified as explained in item 5.2.5 above. OK
5.2.7 Were all the values from FSR applicable and valid at the time of the investment decision?	/11/ /12/ /14/	X			The FSR values used in the financial analysis were applicable and valid at the time of investment decision.		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 led to a change in the benchmark?	/12/	X			The selected approach - the benchmark analysis - identified the lowest level of return on equity for the energy sector as 12.5%. This value is based on official default benchmarks from countries with the same Moody's Index as Turkey. It is reasonable to assume that the projects below this benchmark are financially unattractive.		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?	/9/ /11/ /12/ /69/	X	X		In general, the guidance on IRR calculation and assessment has been correctly applied. Two inconsistencies with the guidance have been identified: - A minor shift in cells as to when to start the depreciation costs of the plant. - Inclusion of the licence fee in the analysis which,	See CAR 2, CAR 5	The Investment Analysis has been updated accordingly. OK

					according to the guidance, shall not be considered in the financial analysis.		
5.3 Barrier analysis							
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?	/12/	X			Not applicable.		OK
5.3.2 Do the listed barriers exist <u>and</u> 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?	/12/	X			Not applicable.		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?	/12/	X			Not applicable.		OK
5.4 Common practice analysis							
5.4.1 Does the additionality tool require common practice analysis for the project?	/10/ /12/	X			The 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 02).		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?	/12/	X			It is not claimed that the project is the "first of its kind".		OK
5.4.3 Are the geographical scope of the project activity identified correctly?	/12/	X			The geographical scope, the Yeşilirmak catchment area, is deemed to be plausible geographical scope for the common practice analysis.		OK
5.4.4 Does the VCS PD provide an explanation why this region was selected and deemed more appropriate <u>and</u> is this explanation traceable and reliable?	/12/	X			Yes, the climatic regime for this region and the water availability are specific and region specific. This information is traceable and reliable.		OK
5.4.5 Are there similar operational project activities, other than VCS activities, "widely observed and commonly carried out" in the defined region? <i>Note: Use official sources and local and industry expertise.</i>	/12/	X			Three similar operational projects could be identified in the defined region.		OK

5.4.6 In case there are similar commercially operated project activities, other than VCS activities, already "widely observed and commonly carried out" in the defined region, are there essential distinctions between the VCS project activity and the other similar activities?	/12/ /69/ /70/	X			See CL 5.	See CL 5	Two of the three similar projects are government developed and operated and therefore are subject to a very different investment climate. One project – Yavuz HPP – is operational under similar circumstances without carbon finance but is different from Niksar HPP as the cost per unit output (MW) differs more than 53%. As per methodology a difference of at least 20% signifies that a project is different. There, none of the similar projects operate in the same investment climate as Niksar HPP without carbon revenue. OK
6. Monitoring plan							
6.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the VCS PD?	/6/ /12/	X	X		All relevant parameters are recorded in the monitoring section, including their unit, description, source, monitoring frequency and justification of data source.		OK
6.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?	/12/	X	X	X	Description, measurement method and frequency are stated in the VCS PD and deemed credible and applicable.		OK
6.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	/12/	X			Values of ex-ante parameters are selected correctly. Implemented values are either default values, or ones obtained from reliable sources, such as the TEİAŞ webpage, etc. Most recent available data is being used.		OK
6.4 Is the measurement equipment for each parameter described and deemed appropriate?	/12/	X		X	Identification of monitoring equipment and explanation of quality of assurance/control procedures are contained within the table.		OK
6.5 Is the measurement accuracy addressed and deemed appropriate?	/12/	X			Measurement accuracy, as well as equipment calibration is addressed and deemed appropriate.		OK
6.6 Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?	/12/	X			The responsibility for calibration and maintenance of the meters is clearly defined as is the reasonable range in which measurements can differ. A procedure on how to deal with the failure of one of the meters is outlined.		OK
6.7 Is the frequency of measurement identified and deemed appropriate?	/12/	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 on specific time intervals.		OK

6.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/12/	X			Monitoring plan follows the methodology's requirements and assures transparent and unbiased monitoring of project emission reductions.		OK
6.9 Are the sampling, measurement methods and procedures defined?	/12/	X			Yes, see sections above.		OK
6.10 Are procedures identified for maintenance of monitoring equipment and installations?	/12/	X			The responsibility for calibration and maintenance of the meters is clearly defined as is the reasonable range in which measurements can differ.		OK
6.11 Are the equipment calibration intervals identified and justified?	/12/ /55/ /56 /64/ /65/	X			The calibration intervals for the meters are in line with the national legislation. Additional documents (Type and System Approval certificate) has been requested.	See CL 6	The first reading protocols for the meters, the factory calibration records and the Type and Systems approval certificate, ensuring the accuracy of the meters, have been provided. 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)?	/12/	X			The procedures for day-to-day records handling are identified and reasonable.		OK
6.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	/12/	X			Monitoring arrangement and procedure are presented unambiguously within the relevant section of VCS PD.		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?	/12/	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.		OK
6.15 Do the PPs make provisions for personnel training needs?	/12/		X		To be checked during the site visit.	To be checked during the site visit.	The PPs have confirmed during the interview that training will be provided to the monitoring team. This will be checked during the verification process. See FAR1. OK
6.16 Is the authority and responsibility of overall project management clearly described?	/12/	X			The responsibility and authority of the overall project management is clearly described.		OK
6.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/12/	X			No unintended emissions are expected to result from the power plant, even during any emergencies.		OK
6.18 Are procedures identified for review of reported results/data?	/12/	X			Procedures to triangulate the data records have been identified.		OK
6.19 Is the data archiving period for this project activity stated in the VCS PD and appropriate?	/12/	X			It is explicitly declared that all monitored data records would be kept for at least two years after the end of last crediting period. This period is		OK

<i>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.</i>					considered appropriate.		
7. Monitoring of the leakage							
7.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/12/	X			Not applicable.		OK
7.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>	/12/	X			Not applicable.		OK
7.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	/12/	X			Not applicable.		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?	/12/	X			No additional environmental benefits have been identified. The stakeholder consultation revealed that the local community is hoping to benefit from the project through improved electricity access and more competitive prices.		OK
9. Stakeholders' consultation and comments							
9.1 Were the stakeholders identified in appropriate and complete manner?	/12/ /46/ /47/ /48/	X	X		VCS PD v1 states that key stakeholders were identified mentioning Tokat Governorship, Provincial Environment and Forestry Directorship, Niksar Municipality, Niksar Kaimakam's Office as well as residents from the surrounding villages (Arpaören, Köklüce, Osmaniye, Akinci). All landowners of the planned project were present.	Ok. Details to be confirmed during the site visit.	More information has been provided during the site visit. The PO confirmed that the LSC was well attended by local stakeholders. A video recording of the meeting shown to the VVB confirmed this. OK
9.2 Are the identified stakeholders plausible?	/12/ /46/	X	X		Stakeholders from Tokat Governorship, Provincial Environment and Forestry Directorship, Niksar Municipality, Niksar Kaimakam's Office as well as residents from the surrounding villages (Arpaören, Köklüce, Osmaniye, Akinci) were invited. All residents affected by expropriation were present at the meeting. So the identified stakeholders are plausible.	OK. See CL 8	The participants list contains an excerpt of the local stakeholders that attended. OK
9.3 Does VCS PD describe the means being used to invite local stakeholder's comments?	/12/ /37/	X	X		The PD clearly states the means used to invite comments and encourage participation (incl. phone calls, fax notification, personal invitations, ads in regional and national newspapers).	OK. See CL 9	The VVB was shown copies of the regional & national newspaper that published the LSC announcements. OK
9.4 Were those means appropriate?	/12/	X	X		The means applied to invite stakeholders to the LSC are deemed appropriate.		OK

9.5 Was the project presented to the stakeholders in unbiased manner?	/12/ /46/	X	X		Await more information (minute meetings, interview with PO).	See CL 10	The PPT presentation and summary of the meeting gives an idea that the information given about the project was comprehensive. Villagers / village heads interviewed for the Social Carbon process confirmed that they were sufficiently informed and got the chance to voice their concerns and asked questions. 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
9.7 Is a summary of the stakeholder comments provided in the VCS PD?	/12/ /48/	X			A summary of stakeholder comments as well as the results of the questionnaire have been included in the PD.		OK
9.8 Has due account of any stakeholder comments been taken by PPs and reflected in the VCS PD?	/12/ /48/	X	X		Stakeholder comments have been recorded in the VCS PD and most of them answered by the PO.		OK
10. Environmental impacts							
10.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the VCS PD?	/12/	X			Summary of the possible environmental impacts is included in the PD.		OK
10.2 Is an environmental impact assessment (EIA) required for the VCS project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/12/ /26/	X			In accordance with the "Environmental Law" No. 2872, Annex 2 of Environmental Impact Assessment (EIA) Regulation, run-of-river type HEPPs with an installed capacity of 50 MW or less are not subject to an EIA investigation or report preparation.		OK
10.3 In case an EIA is required, has the EIA been approved by local authorities and is the outcome accurately reflected in the VCS PD?	/12/ /26/	X			A preliminary EIA report has been submitted to MoEUP upon which a verification statement that there is no need for an EIA report has been made.		OK
10.4 Does the VCS PD include a brief description of the environmental effects of the project, including transboundary?					Not applicable.		OK
10.5 Are those effects properly addressed in the design of the project activity?					Not applicable.		OK
10.6 Does the project comply with environmental legislation in the host country?	/12/	X	X		The project complies with the environmental legislation in the host country. Annex 1 lists the applicable legislation.		OK

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	Double check start date and if necessary amend the emission reduction value for 2012.	"VER Summary" cells C9 & C10	Please see the excel spread sheets that reflect the first date the project supplied electricity to the host country grid. The start date is identified as 24.05.2012, and the VCPD version 1.01 is updated accordingly.	OK
1		Slight mix-up in numbers when transferring E&M equipment cost into spreadsheet.	"Investment Cost" cell D12	Corrected in version 1.01 of the financial analysis	OK
2		The depreciation / ammortization shall not start in Year 0 but Year 1.	"Cash Flow" cells G15 and G20	Corrected in version 1.01 of the financial analysis	OK
	2	Please provide the email correspondence indicating early consideration of carbon revenue		Provided	OK
	3	Please double check the dates for the following events in Table 1: Major project milestones: - Grid connection and usage agreement - Turnkey EPC contract - Provisional Acceptance Protocol for Unit 2 Please confirm these dates or correct.	VCS PD v1 - p. 4/5	Corrected in version 1.01 of the PDD	OK
	4	Please confirm the project start date. The PD states 23 May 2012 - the provisional acceptance for unit 2 states 24 May 2012. Please provide the May 2012 PMUM screenshot.	VCS PD v1 - p. 6	Corrected and indicated as 24.May.2012.	OK
3		An incorrect starting date (3 March 2011) is referred to in the eligibility criteria.	VCS PD v1 - p. 12	Corrected in version 1.01 of the PDD	OK
	5	Yavuz HES has been identified as applying technology different to the one applied at Niksar HPP. However, the justifications (capacity, tunnel length, auctioning process) are not deemed sufficient to claim it different to Niksar HPP. Please either provide further explanation to justify the difference or amend.	VCS PD v1 - p. 24	Our project is over Kelkit River the Tributary of Yeşilırmak River. Yeşilırmak River is the main River, and the Yavuz HES is located on that Main River but not on Kelkit stream. But to be conservative we have updated the PD and we are considering Yavuz to be a project similar to our project but developed without carbon finance.	OK

	6	Please provide the "Type and System Approval" certificate to show compliance of the meters with the standards of the Turkish Standards Institute.	VCS PD v1 - p.46	The document has been provided.	OK
	7	"The PO will sign an agreement with the grid operator to specify the QA procedure for measurement and calibration...". Please provide documentation about this agreement for QA procedures or amend.	VCS PD v1 - p.48	The PO have Signed the System Usage Agreement whereby Addendum 3 all the QA procedures for measurement and calibration are described in detail. In addition to that they have signed the connectivity agreement where under clause 6 it is clearly mentioned that the metering equipment belongs to TEİAŞ and the testing and calibrations are TEİAŞ's responsibility and the project owner cannot interfere with the meters.	OK
	8	Please provide a list of participants of the LSC.	VCS PD v1 - p.49/50	Provided	OK
	9	Please provide copies of the LSC announcement in newspapers.	VCS PD v1 - p.49	Provided	OK
	10	Please provide LCS meeting minutes.	VCS PD v1 - p.50	A video of the meeting is presented.	A summary document has been provided in addition to the document as well. OK
	11	Please provide the following outstanding documents: - Single line diagram - Training courses for staff - Annex 5: Diagram reservoir surface area		The documents have been provided.	OK
4		The emission calculation spreadsheet provided to the VVB team uses gross electricity production unlike the results presented in the VCS PD. Please provide the correct emission calculation spreadsheet.	VCS PD v1 – p.7 NiksarHydro_CM_2012v1.0.xlsx	The emission calculation spreadsheet has been updated to reflect the change in the value of expected electricity production as well as to include the net rather than gross production.	OK
5		The financial analysis includes the licence fees that the PO initially paid to the authorities in 2006. The actual investment decision date is 15 Dec 2009. According to the guidelines for the investment analysis, the licence fee cost shall not be included in the financial analysis.	Financial Analysis spreadsheet v1	The licence fee cost item has been excluded from the financial analysis and the VCS PD has been updated accordingly.	OK

5.3 List of Forward Action Requests (FARs)

#	Forward Action Request (FAR)	Reference
1	The VCS PD describes that the VER team (responsible for monitoring the relevant parameters) shall receive a training to ensure there are aware of their responsibilities and perform the monitoring in line with the report. This training has not been conducted. The PPs have confirmed in the interview during the validation process that they intend to provide such training will be provided to the monitoring team. This shall be checked during the verification process.	Validation protocol, item 6.15