



Voluntary Carbon Standard 2007 Validation Report

19 November 2007

Validation Report:

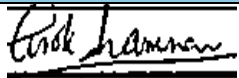
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Validation Report of Kargilik 24 MW Hydropower Plant, Turkey	Ashok Mammen 
Client:	Project Title:
Tektug Elektrik Uretim A.S.	Kargilik 24 MW Hydropower Plant, Turkey
Summary:	
Bureau Veritas Certification has made the validation of Kargilik 24 MW Hydropower Plant in Ceyhan basin, Kahramanmaraş province, Turkey. The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following four phases: i) desk review of the project design and the baseline and monitoring plan; ii) Review of the baseline methodology by the specialist and the validator; iii) follow-up interviews and on site visit; iv) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures. The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Annex in the Validation Protocol. Taking into account this output, the project proponent revised its project design document. In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources", Version 9 and meets the relevant VCS 2007.1 requirements, and local legislation.	
Work carried out by:	Number of pages:
Burcu Mutman – Team Leader Yildiz Arikan – Sector Specialist	60

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1 Introduction

This report summarizes the findings of the validation of the project, performed on the basis of VCS 2007.1 criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant VCS criteria which are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Voluntary Carbon Units (VCUs).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against UNFCCC CDM methodologies and tools that are referenced and used for the calculations, Kyoto Protocol requirements, VCS rules and associated interpretations. The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 VCS project Description

The Kargilik 24 MW Hydropower Plant, Turkey is a run-of-river hydropower project located in Kahramanmaraş province, Turkey. It utilizes the gross water head of 150m on the Kesis River to generate and supply electricity from clean and renewable resources.

It utilizes the water head of the Savrun River between elevations 490 m and 240 m. The objective of the project is to generate electricity and supply it into the public grid. "Kargilik" HEPP will be registered as a Voluntary Emission Reduction (VER) project and facilitate the project implementation with carbon revenue coming from the carbon credits sale. The Project Activity is in operation since 25.04.2005. According to the generation license, the total annual net electricity supply is estimated to be 71,000 MWh annually, corresponding to GHG emission reductions of 43,717 tCO₂e every year. The crediting period starts from 28.03.2006 as per the requirements of VCS 2007.1.

1.4 Level of assurance

The Level of assurance of the Validation Report is defined as high.

2 Methodology

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a Validation protocol was customized for the project. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

VCS methodologies describe either:

- The methodology to determine a projects baseline scenario emissions levels and the process to monitor emissions reductions;
- A performance standard methodology to demonstrate that a project is additional (beyond normal business activities).

2.1 Review of Document

The Project Description (PD) submitted by Mavi Consultants (Mavi Consultants are not the project participants, they are acting as carbon consultants for this project and are also responsible for the transaction of the credits as stated in the PD) and additional background documents related to the project design and baseline, i.e. country Law, VCS Project Description Template, Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements were reviewed.

To address Bureau Veritas Certification corrective action request and clarification requests Mavi Consultants, revised the PD (revision3) and resubmitted it to the validation team in May 2009. After further clarifications all corrective action requests and clarification requests were closed in June 2009.

All documents were reviewed under the requirements of the related CDM Methodologies, tools and VCS rules.

2.2 Follow-up Interviews

During March 2009 and June 2009 Bureau Veritas Certification performed interviews with Mavi Consultants and Tektug Elektrik and local stakeholders (list of which is given in section 5.2 of this report), regarding Grid emission factor, project specific questions and Clarification and Corrective Actions Request documented in the Validation protocol. After the discussions, the Validation Team closed all documented CL and CAR in the Validation Protocol on 18/06/2009.

2.3 Resolution of any material discrepancy

During the Validation there were no material discrepancies were identified.

3 Validation Findings

3.1 Project Design

Bureau Veritas Certification recognizes that Tektug Elektrik Uretim A.S.'s Kargilik Project is helping country fulfil its goals of promoting sustainable development. The project is in line with Local Environmental requirements. In addition, the project with regards to economic, social and environmental impacts has been assessed and has been judged as being neutral or positive.

The Project Activity involves generation of electricity from renewable sources. The purpose of the Project Activity is to generate power in an efficient, clean, reliable and sustainable way with utmost respect on social and environmental reflections and to reduce emissions by partially substituting the electricity supply of fossil fuel fired power plants in Turkey.

- *The technology used:*

The Project is located in northern Mediterranean sea region, near Andirin town, Kahramanmaraş province, Turkey. The regulator is located at coordinates 37°32'6.04"N and 36°14'23.74"E. The Power House is located at 37°32'57.77"N and 36° 9'6.78"E. The regulator and the Power House have an air distance of ca. 1.7km from each other. The Project partially diverts the Kesis River water flow to a regulator structure and use the water head to drive turbines. This electricity is then supplied to the national grid.

The project is a new power unit and it did not replace an old plant.

Total installed capacity of the project is 24 MW_e which consists of 2 Vertical axis Francis type turbines.

There are 2 synchronized generators attached to the facility each with turbines each with capacity of 13.67 MWA and a frequency of 50 Hz.

- *Project duration, crediting time and project start date:*

The Project start date is April 25th, 2005. Under VCS 2007.1, the project start date is defined as "the date the Project Activity began reducing or removing GHG emissions". In agreement with VCS 2007.1 rules, the earliest project crediting period start date shall be March 28th, 2006. The project start date is earlier than this requirement, therefore the crediting period has been defined as March 28th, 2006. The first crediting period is 10 years and ends on March 27th, 2016. Crediting period is planned to be renewed 2 times more, adding up to 30 years in total.

The license of "Kargilik Hydroelectric Power Plant" which is given in Annex II of the PD is valid from 24/04/2003 and is valid for 40 years 0 months.

- *Ownership:*

The sales rights of the GHG reductions belong to the carbon consultants, ensured by a contractual arrangement with the project owner. The conditions and details of this arrangement are commercially sensitive. Mavi Consultants have the rights to act on behalf of the project owner for the development and sales of the carbon credits. The generation license and the Project is owned and operated by Tektug Elektrik Uretim A.S.

Kargilik HEPP will be registered as a Voluntary Carbon Standard (VCS) project and facilitate the project implementation with carbon revenue coming from the carbon credits sale. Due to its significant contribution in diminishing carbon emissions and protecting the climate this project is anticipated to fulfil the requirements set out by VCS and qualify for carbon finance

The project has neither applied nor been rejected by another GHG program before.

- *Whether the project is eligible under the VCS*

The project comes under Sectoral scope 1 - Energy industries (renewable - / non-renewable sources) and is eligible under the VCS.

3.2 Baseline

- *Approval of the baseline methodology:*

The baseline for the “24 MW “Kargilik”, Hydro Electric Power Plant Project in Kahramanmaras Turkey” was established through the official methodology of ACM0002 Version 9, named “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” as approved by the CDM Executive Board. Conservative options and data were selected during the implementation of the methodology.

The UNFCCC Methodological “Tool to calculate the emission factor for an electricity system” version 01 is used for the calculation of emission factor of Turkish National Grid and UNFCCC Methodological Tool “Tool for the demonstration and assessment of additionality” version 05.2 is used for the demonstration and assessment of additionality and “ISO 14064-2:2006” is used as a general guideline.

- *Correct application and justification of selected baseline methodology*

The purpose of the Project Activity is to generate power in an efficient, clean, reliable and sustainable way with utmost respect on social and environmental reflections and to reduce emissions by partially substituting the electricity supply of fossil fuel fired power plants in Turkey.

The choice of the use of the Methodology ACM0002 Version 09 is justified as the proposed project activity meets relevant applicability criteria, as follows:

1. VCS 2007.1 requires the use of UNFCCC methodologies for baseline and monitoring
2. The Project is a large scale (>15 MWe) project
3. The Project is in line with the following ACM0002 rules;
 - The project activity is the installation of a hydro power plant.
 - The project activity results in new reservoirs and the power density of the power plant is greater than 4 W/m².
 - The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available
 - Project activities does not involve switching from fossil fuels to renewable energy sources at the site of the project activity

- *Appropriate setting of baseline scenario:*

Regarding to guideline and the methodology, the following two baseline scenarios are identified;

- i. Generation of the same amount of electricity by the pool of other power plants connected to the national electricity grid
- ii. Import of the same amount of electricity by the grid operator from neighbour countries.
- iii. The project activity undertaken without being registered as a VER project activity

From both the alternatives, the Alternative i is chosen as the baseline scenario, as Turkey’s national electricity policy favours energy generation rather than import. Small amounts of electricity are being purchased to cover critical peak demand; however

neighbour countries are unable to generate high amounts of electricity on which Turkey can base its energy strategies on.

In the absence of the Project, the grid operator TEIAS would be forced to organize the remaining power plants such that they cover the shortage by increasing their generation. After new power plants enter operation, they will also contribute in covering the electricity generation. To take both effects into account, the GHG emission reductions of the Project are calculated by using a weighted average of emission factors of already existing and planned power plants.

All alternatives mentioned above are in line with applicable legal and regulatory requirements.

The baseline scenario is found appropriate by the validation team.

- *Assessment and demonstration of additionality:*

The project test given in VCS 2007.1 has been used to demonstrate the additionality.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

The detailed info on how the alternatives are identified by the project participant is given under bullet "Appropriate setting of baseline scenario" The project is not mandated by any enforced law, statute or other regulatory framework.

Step 2: Investment Analysis

Investment Analysis is not applied.

Step 3: Barrier Analysis

Investment, Technological and Institutional barriers have been identified for the project activity.

Project Finance is a common way of finance for renewable energy projects. However, due to risk perception in Turkey, project finance –although preferable- is not possible for project owners. In order to secure credit repayments and minimize their exposure to risks, banks only issue credits against strong payment guarantees. Letter of guarantee, personal payment guarantees, pledges, company shares, shareholders' properties and other types of assets are often required by banks at an amount exceeding the value of the credit itself.

The overall financing discussion took around 5 years from the start to the signature of the general credit agreement. The finance has been costly to the project owner both in terms of negotiation costs as well as credit costs. They have started the talks on 20.09.2000 and finalized the talks and signed the first credit part agreement on 11.07.2005.

The main reason for this delay is the financial crisis in 2001 when Turkey went through a very severe financial bottleneck, with several commercial banks going bankrupt and other banks reacting extremely cautious.

The project has faced some barriers related to technology, as the Project is located in a fairly remote area. Employing technical staff needed for the operation and maintenance of the project was difficult, as no appropriately educated local people were available. In order to overcome this challenge, the Project owners circulate educated and uneducated personnel between their HEPPs to provide local staff the necessary know how and experience.

On the other hand, the Project is one of the first hydropower projects of the project owner. Not only designing, but also operating a power plant is another field of activity where the project owner had no experience. In order to develop the Project, the project owner had

to hire experts and assign engineering companies, at its own risk and cost, to successfully design, build and operate the Project. Going into a completely new sector was a significant risk and technological barrier for the project owner, because proper technical design and operation are key factors in renewable energy investments.

The Project has been initially designed as a BOT project in 29.06.1998, under which the project owner was supposed to have a negotiated BOT electricity sales agreement with the government. In 26.01.2001 Project owner confirmed EIGM for the Autoproducer model. After that in 03.03.2001 new electricity market law published and all license applications cancelled. The beginning and the finalizing the license permits took 7 years.

As a result of the lack of accompanying regulations and communiqués as well as organizational restructuring of the permission bodies, the Project could not obtain necessary permits for a long time. This not only created a significant amount of up-front costs for the project owner but it also resulted in loss of the incentives, on which the project was designed on. Therefore, feasibility of the project is severely reduced throughout the long permission procedure.

Regarding BOT, with government-guaranteed purchase agreements, project owners would be able to find financing easier, as banks would be more willing to provide loans to a less risky project. After the market liberalization, however, purchase guarantee has been lifted off, resulting in a drop of financiers' interest. Furthermore, before 2001 a public special purpose fund assured hydro power plant operators to cover their financial losses, which resulted from lower water flow rates. Thus, project owners were guarded against poor precipitation or drought, allowing banks to estimate guaranteed project revenues easily.

Although these incentives are taken into account initially for designing the Project, they were abandoned after the introduction of the Electricity Market Law and project owners were left alone in competing freely with public power plants. As most of these plants were publicly-financed and already amortized, the electricity prices were very low and hydro power plants without above explained incentives lost their attractiveness.

It can be seen from the barriers summarized above that, the project had faced real difficulties from the beginning. As a result it is concluded by the validation team that the barriers that the project has faced are real and truly reflects the situation in Turkey.

Step 4: Common Practice

River type IPP HEPPs in Turkey is not very common. There are several HEPPs, which are either publicly built and operated, or constructed as a BOT model. In both cases, pricing, financing and risks structures are very different. Therefore, for comparison purposes, only other IPP HEPPs can be considered.

The below table shows the share of IPP HEPPs in the Turkish grid:

Share of IPP HEPPs	2003	2004	2005	2006	2007
Gross Generation of IPP HEPPs [GWh]	49.9	N/A	460.7	1,273	1,503
Gross Generation of all HEPPs	33,248	N/A	39,658	45,702	46,226
IPP's Share	0.2%	N/A	1.2%	2.8%	3.3%
Gross Generation of the System [GWh]	140,581	150,698	161,956	176,300	N/A
IPP's share	0.0%	N/A	0.3%	0.7%	N/A

The table above suggests that IPP HEPPs' share among overall HEPPs is low (3.3% in 2007). Compared to the total system generation, it is even lower than 1%. There is no specific official forecast regarding IPP HEPPs in the pipeline, however the trend suggest that the share of IPP HEPPs will remain low.

Only IPP HEPPs are considered as similar projects generating energy with fairly similar properties. IPP HEPPs in the same region would be more comparable to each other, as prevailing conditions (precipitation patterns, demographics, geographical specifications, regional support mechanisms, economic development level, environment, employment, operational risks, financial willingness of financiers based on project location etc.) may vary according to the region.

Having these differences in mind, 5 relatively similar projects are located in the same region (around Kahramanmaras – Adana – Kahramanmaras provinces). Among these 5 other IPP HEPPs close to the Project, there is only one HEPP with a license date earlier than the Project (that unique license also belongs to the same project owner). Other 4 HEPPs have later license dates, indicating the pioneer position of the project owner. Therefore, since such activities are not common in the region, the Project cannot be regarded as business as usual.

As explained above, it is also concluded by the validation team that the project is not common practice and as it is also in line with other requirements of the VCS additionality test, the project is additional.

3.3 Monitoring Plan

- *Monitoring methodology:*

Consolidated methodology for grid-connected electricity generation from renewable sources Version 9 is used as a monitoring methodology.

- *Correct application and justification of selected monitoring methodology:*

The justification of the choice is explained in section 3.2 of this validation report. The monitoring methodology is applied correctly and appropriately.

- *Details of the monitoring plan:*

The data and parameters that will be monitored is given in the below table which is given under section 3.3 of the PD:

Data / Parameter:	EG _y
Data unit:	MWh
Description:	Annual net electricity generated by the Project Activity
Source of data to be used:	Measured by TEIAS-approved measurement devices and attained from the PMUM website, which is also used by TEIAS for invoicing.
Value of data applied for the purpose of calculating expected emission reductions	Estimated amount of annual net electricity generation supplied to the grid as given in Table 18.
Description of measurement methods and procedures to be applied:	There are two metering instruments. These devices measure the net electricity supply to the national grid by the Project Activity, all losses before this point are on account of the project participant. Both metering instruments, which continuously monitor and measure the net electricity delivered by the Project Activity, are sealed and only accessible by TEIAS personnel. Official TEIAS data from the PMUM web site will be used for calculating EG _y .
QA/QC procedures to be applied:	See Section 3.2
Any comment:	The annual emissions reductions will be updated by multiplying the ex-ante calculated baseline emission factor by the metering instrument readings. The metering device does not measure the net electricity generation but the gross generation and self consumption separately. Their difference gives the net electricity generation, which is going to be listed on a monthly basis for monitoring purposes.

TEIAS invoices according to the net electricity supply, which takes transmission line losses into account. This means that the invoiced amount of electricity is the difference of gross generation, self consumption and transmission line losses, which is determined by TEIAS every month as a certain percentage. For emission reductions calculations, however, transmission line losses shall not be subtracted; therefore the invoiced amount of energy cannot be used. Instead, the monitoring parameter **EG_y** (Project's annual net electricity generation) will be used, which is the difference between the Gross Electricity Generation (GEG_y) and Project Activity's Self Electricity Consumption (SEC_y):

$$EG_y = GEG_y - SEC_y$$

PMUM settlement website publishes monthly GEG_y and SEC_y data in detail (with a breakdown into three daily time periods and also their sum), however it does not show EG_y separately. Therefore, for each month GEG_y and SEC_y data need to be recorded and their difference has to be calculated on a monthly basis.

The annual total net electricity generation is then found by summing up monthly EG_y values.

The monthly figures will be used to fill in the Net Electricity Generation monitoring plan spreadsheet. This spreadsheet is evaluated and it is found applicable by the validation team. The monthly and annual emission reductions are automatically calculated with the subject spreadsheet, provided that monthly figures are entered.

The scans or hardcopies of monthly PMUM report print-outs will also be supplied as proof to the DOE during verification, in parallel with the spreadsheet enabling the DOE to check their equality. This will ensure a high data quality.

Roles and Responsibilities:

On behalf of the project participants, **Mrs. Elvan Tugsuz Guven** (board member of the project owner) from Ciltug Isi San. Tic. A.S. is responsible for the preparation of the monitoring report. This task includes accessing the PMUM settlement web site with a unique ID and password and printing the monthly reports for the crediting period prior to verification. These reports will then be used to fill in the summary table, which is the final document for calculating total emission reductions, basis for VCS VCUs. Both the scans of monthly PMUM reports and the summary Excel table will be prepared by **Mrs. Elvan Tugsuz Guven** and submitted to the verifying DOE for verification.

Data Quality, Storage and Accuracy:

Concerning metering system accuracy, project participants have to comply with relevant national legislation. The project must ensure that the metering devices are in line with the technical requirements which are set out by the relevant legislation. Metering devices are technically checked by independent companies for their accuracy and certified. Afterwards, TEIAS also tests both metering devices in order to ensure that the devices satisfy all requirements and are calibrated properly.

The collected data will be kept and stored at least for 2 years during the crediting period by the project owner. The PMUM web site also provides relevant data in detail for unlimited time (which are also used as the basis for invoicing).

The two measurement instruments are not accessible by the project participant or any other 3rd party except TEIAS. This prevents any intervention and assures the accuracy and quality of the measurements

The project emissions are considered negligible as advised by the methodology.

In the PD, it is mentioned that, for the second crediting period, the build margin emission factor will be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE.

As a result the choice, implementation and effectiveness of the monitoring methodology is found acceptable by the validation team.

3.4 Calculation of GHG Emissions

- *The appropriateness of the source, sink and reservoir:*

The dominant emissions from power plants are in the form of CO_2 , therefore CO_2 emissions from fossil fuel fired power plants connected to the grid will be accounted for in

baseline calculations. The project emissions are neglected as suggested by the methodology.

This approach is found suitable by the validation team.

- *The correctness and transparency of formulas and factors used,*

The baseline calculations are made according to the UNFCCC Methodological Tool to Calculate Emission Factor for an Electricity System version 01. According to this tool the following choices are made:

- a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the “Tool to calculate the emission factor for an electricity system” is used in calculations because the weighed average emissions of the generation mix data is not accessible.
- b) For the calculation of the OM, the “Simple OM-Option C” method is chosen as the relevant data requested for other methods are not publicly available.
- c) The OM and BM calculations are done using the Ex-Ante option.
- d) All the formulas used during the calculations are correct and applicable.

The formulas and factors related to the choices (list of which is given above) are applied in a correct and transparent manner.

- *The assumptions made for estimating GHG emission reductions are as follows:*

- a) The spatial extent of the Project Boundary is defined as the national electricity grid of Turkey
- b) The publicly available data do not sub-categorize the coal amount by type for 2006 and 2007. For harmonization with guideline reference figures, the total of hard coal and imported coal in 2006 and 2007 are broken down with a constant divisor, which is the ratio of hard coal/imported coal in 2005.

The above mentioned assumptions are found correct and suitable by the validation team.

The conclusions of the calculations are as follows:

$$EF_{\text{grid,OMsimple,y}} = 0.699 \text{ tCO}_2/\text{MWh}$$

$$EF_{\text{grid,BM,y}} = 0.533 \text{ tCO}_2/\text{MWh}$$

$$EF_{\text{grid,CM,y}} = 0.616 \text{ tCO}_2/\text{MWh}$$

$$ER_y = 31,796 \text{ tCO}_2$$

3.5 Environmental Impact

- *Requirements for and approval of an Environmental Impact Assessment:*

The project owner has submitted a pre-EIA report to the Ministry of Environment and Forestry as requested by the Turkish environmental legislation. After assessing this pre-EIA report, the Ministry of Environment and Forestry decided that EIA is not required for this project activity as it does not have any negative environmental impacts. A copy of the EIA not required certificate is given in Annex II of the PD.

- *The sufficient documentation of environmental impact*

A certain number of trees are cut within the Project region. The legal procedure requires the project owner to pay a fee for deforestation to the local Forestry Directorate, with which the relevant public bodies finance afforestation projects for mitigation on other areas. As a further mitigation measure, ca. 2,000 pomegranate trees are planted in the area by the project owner as a CSR activity. The personnel for the maintenance of these trees are employed from the village, creating additional employment in the area.

The environmental impacts that are summarized above have been evaluated and verified by the validation team. The pre-EIA report has been analysed. It has been decided that the project has no negative environmental impacts.

3.6 Comments by stakeholders

An information meeting has been organized on 26.12.2005 in Kosepinari village. From the village, 23 people have participated in the meeting.

There were some houses in the project location but the owners sold their properties to the project owner voluntarily. This has also been stated in the stakeholder consultation. The concerns of the stakeholders were mainly about employment, inundation of agricultural land and noise. It was explained by the project owner that no agricultural land will be inundated under the reservoir area, they have also explained that they will primarily employ local people as they did during construction. The project owners also stated that the project will be in line with noise regulations.

Before the Project implementation, the village road was frequently inundated during rains. The project owner has constructed a bridge, which allows easy access for local people. Furthermore, the project owner has lent its own machinery at village's disposal for free, when necessary. The Project has resulted in the creation of new jobs in the village, improving life standards in the vicinity.

In summary, local communities are supporting the project and they believe that it creates a momentum for local sustainable development. The memorandum of the local stakeholder meeting and a written statement of the village headman covering the above stated issues has been seen by the validation team.

As a result the validation team has verified that stakeholders are in favour of the project.

4 Validation conclusion

Bureau Veritas Certification has performed the validation of Kargilik 24 MW Hydropower Plant in Kahramanmaraş province, Turkey.

The validation was performed on the basis of VCS criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following four phases:

- i. Desk review of the project design and the monitoring plan
- ii. Review of the baseline methodology by the specialist and the validator
- iii. Follow-up interviews and on-site visit
- iv. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The VCS methodology, “Test 1: The project test” is used to demonstrate additionality. In line with this methodology, Regulatory Surplus, Implementation Barriers and Common Practice steps are defined and satisfied.

The baseline scenario is: by generating electricity using renewable energy, the project is likely to result in reductions of GHG emissions partially displacing the electricity that would have been generated using fossil fuels. Analysis of the investment, technological, institutional barriers shows clearly that the project itself is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions. The review of the Project Description (Version 01 dated 18 March 2009) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfilment of stated criteria.

The Project Description was subsequently revised as Ver 03 dated 15 May 2009 to resolve the issues that rose during the interviews and subsequent interactions.

In our opinion, the project correctly applies and meets the relevant VCS 2007.1 requirements and the relevant host country criteria. The validation is based on the information made available to us and the engagement conditions detailed in this report.

5 References

5.1. Documents

The documents that relate directly to the GHG components of the project activity, and that were submitted to the DOE are listed below:

1. PD of Kargilik 24 MW Hydropower Plant, Turkey. (Version 1 – 18 March 2009)
2. PD of Kargilik 24 MW Hydropower Plant, Turkey. (Version 2)
3. PD of Kargilik 24 MW Hydropower Plant, Turkey. (Version 3 – 15 May 2009)
4. Consolidated methodology for grid-connected electricity generation from renewable sources Version 09
5. The UNFCCC methodology “Tool to calculate the emission factor for an electricity system”, Version 01
6. VCS PD Template – 19 November 2007
7. Voluntary Carbon Standard 2007.1
8. Emission Factor Calculations

5.2. Interviews

1. Mrs. Elvan Guven – Tektug Elektrik Uretim A.S.
 2. Yagmur Karabulut – Mavi Consultants
 3. Sacit Saygın – Ciltug Isi Sanayi A.S.
 4. Ali Aslan – Ciltug Isi Sanayi A.S.
 5. Muzaffer Çeribaş – Villager of Bulgurkaya
 6. Mustafa Toros – Employee of the Kargilik HEPP
 7. Ismet Çeribaş – Headman of Bulgurlu Village
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6 ANNEX A – Validation Protocol

TABLE 1 REQUIREMENTS CHECKLIST

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project <i>The project design is assessed.</i>			
A.1. Title of the project , version number and date of the document	Title : Kargilik 24 MW Hydropower Plant Date : 22 April 2009 Please give the version number of PD.	CL 1	OK
A.2. Description of the project			
A.2.1. Is the purpose of the project included?	Yes, in PD section 1.4 the purpose of the project activity is defined as to generate power in an efficient, clean, reliable and sustainable way with utmost respect on social and environmental reflections and to reduce emissions by partially substituting the electricity supply of fossil fuel fired power plants in Turkey.	OK	OK
A.2.2. Is the view of the project participants on the contribution of the project to sustainable development included?	Yes. The view of the project participants on the contribution of the project activity to sustainable development included in terms of social, environmental, technological, and economical in section 1.4 of PD.	OK	OK
A.2.3. Is the project in line with relevant legislation and plans in the host country?	Yes, the project is in line with relevant legislation and plans in Turkey. (PD section 1.4 and in 2.5 step 1.b.)	OK	OK
A.2.4. Will the project create other environmental or social benefits than GHG emission reductions?	Yes, the project create environmental and social benefits like control erosion in the project area and create new jobs for the local people.	OK	OK
A.3. Project participants			
A.3.1. Are Party(ies) and private and/or public entities involved in the project listed?	Yes. Tektug Elektrik Uretim A.S. as a project operator and Mavi Consultants as a carbon consultant involved in the project activity as a private entities.	OK	OK
A.3.2. Is the contact information provided in PD?	Yes, the contact information of Tektug Elektrik and Mavi Consultants provided in section 1.15 of PD.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
A.3.3. Is this information indicated using the tabular format?	Yes, Tektug Elektrik's and Mavi Consultants contact informations given in the tabular format in section 1.15 of PD.	OK	OK
A.4. Technical description of the project			
A.4.1. Location of the project			
A.4.1.1. Host country Party(ies)	Turkey is the host country.	OK	OK
A.4.1.2. Region/State/Province etc.	The region of the project is in Mediterranean Sea Region. (Section 1.5 of PD)	OK	OK
A.4.1.3. City/Town/Community etc.	The project is located in Kahramanmaras Province.	OK	OK
A.4.1.4. Detailed description of the physical location, including information allowing the unique identification of this project .	The unique identification of the project is ; The regulator coordinates are 37°32'6.04"N and 36°14'23.74"E. The Power House coordinates are 37°32'57.77"N and 36°9'6.78"E. The regulator and the Power House have an air distance of ca. 1.7km from each other.	OK	OK
A.4.2. Category of the project			
A.4.2.1. Is the category of the project specified?	The project is a 24 MW hydro electric project which produces electric from renewable source and sells it to the grid. Regarding to this information project is Sectoral scope 1 - Energy industries (renewable - / non-renewable sources)	OK	OK
A.4.2.2. Is it justified how the proposed project conforms to the project category selected?	The category selection is justified as the project is a 24 MW hydro power plant and it is verified with the production license.	OK	OK
A.4.2.3. Are conditions prior to project initiation presented?	In section 1.7 of PD grid conditions prior to the project activity are presented. Please also give environmental conditions of the project area prior to project activity in section 1.7 of PD.	CL2	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
A.4.2.4. Is demonstrated that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction?	Yes, in section 1.12 of PD it is stated that project does not involve the creation of GHG emissions.	OK	OK
A.4.2.5. Was the project rejected under other GHG program?	No, in section 1.3 and 1.14 of PD it is stated that the project has not created any form of environmental credit. The emission reductions of the Project have not been registered before, under any other programme.	OK	OK
A.4.3. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>			
A.4.3.1. Does the project design engineering reflect current good practices?	There is no discussion in the PD that engineering reflect current good practices.	CL3	OK
A.4.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	Please state if the project 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.	CL4	OK
A.4.3.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	It is not clear if the project technology is not likely to be substituted by other or more efficient technologies within the project period. Please give proof.	CL5	OK
A.4.3.4. Does the project require extensive initial training and maintenance efforts	Please state in PD section 1.9 if the project require extensive initial training and maintenance efforts in order to work as	CL6	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
in order to work as presumed during the project period?	presumed during the project period.		
A.4.3.5. Does the project make provisions for meeting training and maintenance needs?	Please state in section 1.9 of PD if the project make provisions for meeting, training and maintenance needs.	CL7	OK
A.4.4. Estimated amount of emission reductions over the chosen crediting period.			
A.4.4.1. Is the estimate of total anticipated reductions of tons of CO2 equivalent provided?	Yes, the estimated emission reductions for the crediting period are 405,281 tons of CO2.	OK	OK
A.4.4.2. Is this information indicated using the tabular format?	Yes, the tabular format used to give estimated emission reductions in section 1.3	OK	OK
A.4.5. Public funding of the project			
A.4.5.1. Is it indicated whether public funding from Parties included in Annex I is involved in the proposed project ?	Please state that there is no public funding involved in the proposed project.	CL8	OK
A.4.5.2. If public funding is involved, is information on sources of public funding for the project provided in Annex 2, including an affirmation that such funding does not result on a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties?	n.a.	-	-

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>			
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>			
B.1.1. Are the title and the reference of the baseline methodology applicable to the project defined?	Yes, the title and the reference of the baseline methodology (ACM002) is applicable to the project. (PD section 2.1.) Please correct the version of the methodology as v.09	CL9	OK
B.1.2. Is the baseline methodology previously approved by the CDM Methodology Panel?	Yes. The baseline methodology ACM0002 Version 9 is previously approved by the CDM Methodology Panel	OK	OK
B.1.3. Does the proposed project meet the applicability conditions of the methodology?	Yes. The proposed project meets the applicability conditions of the methodology since the project activity is the installation of hydro power plant, it results in new reservoir and the power density of the plant is greater than 4 W/m ² , the characteristics of the grid is available and the project does not involve switching from fossil fuels to renewable energy sources at the project site.	OK	OK
B.2. Description of how the methodology is applied in the context of the project			
B.2.1. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	Yes, ACM0002 which chosen as the baseline methodology is the most applicable for this project since it is approved methodology by CDM Meth. Panel and it is one of the VCS requirement, the project is a large scale project and the project is in line with the ACM0002 requirements as explained above question. (B.1.3.)	OK	OK
B.2.2. Is the project construction and operation of a new hydro grid connected electricity generation plant?	Yes, the project is construction and operation of a new hydro grid connected electricity generation plant.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
B.2.3. Can the geographical boundaries of the baseline grid be clearly defined and information pertaining to the grid and estimating baseline emissions publicly available.	Yes. The geographical boundary and the information of the baseline grid is available in TEIAS webpage.	OK	OK
B.2.4. Water resources is sufficiently available in the region or country.	Yes, water resources are sufficiently available in the region. Minimum water flow rate which is decided by the State Water Works (DSI) will be maintained by the project owner. The agreement between DSI and the project owner has been seen during the site visit.	OK	OK
B.3. Description of the project boundary for the project			
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?	Yes, the geographical boundary of the project is defined as Andirin Town, Kahramanmaras province. It is verified during the site visit.	OK	OK
B.3.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	Yes, the project's system boundaries are clearly identified in section 1.5 of PD. The regulator and the Power House are located close to Kocafakili, Kelesli and Hacimahmutlu neighbourhoods. The Project partially divert the Kesis River water flow to a regulator structure and use the water head to drive turbines.	OK	OK
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario			
B.4.1. Does the PD explain how most plausible baseline scenario is identified?	Two baseline scenarios defined in PD section 2.5. One of them is generation of the same amount of the electricity from the grid and the second one is import of the same amount of the electricity from the neighbour countries. Generation of the same amount from the national electricity grid selected since neighbour countries are unable to generate high amounts of electricity only	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
	imported electricity are the small amounts for the peak demands.		
B.5. Description of how the anthropogenic GHG emissions by sources are reduced below those that would have occurred in the absence of the proposed project			
B.5.1. Is the proposed project additional?	Please see the additionality protocol in table 4.		
B.5.2. Are national policies and circumstances relevant to the baseline of the proposed project summarised?	Turkey has no legal requirements to reduce its emissions. The project is totally voluntary. The defined alternatives and the project activity are subject to the same regulations and it is identified in section 1.10 of the PD.	OK	OK
B.6. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.			
B.6.1 Explanation of methodological choices <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>			
B.6.1.1. Are all relevant methodological choices / scenarios explained?	Yes, all methodological choices are explained in Table 09. However in version 1 of the PD, VCS 2007. Section 5.8 defined as a methodology. Regarding to VCS rules and the ACM0002 it should be the additionality tool of the methodology.	CAR1	OK
B.6.1.2. Are various emissions like project emissions, Baseline emissions and Leakages considered for calculations?	Project emissions and leakage is negligible regarding to methodology. But baseline emissions considered for calculations.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
B.6.2. Data and parameters that are available at validation. <i>Compilation of information on the data and parameters that are not monitored throughout the crediting period but are determined only once.</i>			
B.6.2.1. Are all data or parameters; the chosen value or, where relevant, the qualitative information presented using the table provided?	Data to be monitored is given in as EGy (Annual net electricity generated by the project activity)	OK	OK
B.6.3. Ex-ante calculations of emission reductions. <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>			
B.6.3.1. Are all aspects related to direct and indirect GHG emissions, including leakage, captured in the project design?	Yes, all aspects related to direct and indirect GHG emissions captured in the project design.	OK	OK
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	Yes, the GHG calculations documented in a complete and transparent manner.	OK	OK
B.6.3.3. Have conservative assumptions been used to calculate project GHG emissions?	Yes, conservative assumptions been used to calculate project GHG emissions.	OK	OK
B.6.3.4. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	Yes, all relevant GHG been evaluated.	OK	OK
B.6.3.5. Are uncertainties of external data	Yes, uncertainties of external data sources for emission	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
sources for emissions reduction estimated?	reduction estimated.		
B.6.3.6. Are potential leakage effects beyond the chosen project boundaries properly identified?	Leakage is negligible for the project regarding to methodology.	OK	OK
B.6.3.7. Have these leakage effects been properly accounted for in calculations?	n.a.	-	-
B.6.3.8. Does the methodology for calculating leakage comply with existing good practice?	n.a.	-	-
B.6.3.9. Are the calculations documented in a complete and transparent manner?	Yes, the calculations documented in a complete and transparent manner.	OK	OK
B.6.3.10. Have conservative assumptions been used when calculating leakage?	n.a.	-	-
B.6.3.11. Are uncertainties in the leakage estimates properly addressed?	n.a.	-	-
B.6.4. Summary of the ex-ante calculations of emission reductions. <i>Summarize the results of emission reductions for all years of the crediting period.</i>			
B.6.4.1. Are the reductions of emissions of the project captured as per the tabular form?	Yes. The reductions of emissions of the project are captured as per the tabular form	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
B.7. Application of the monitoring methodology and description of Monitoring Plan <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.</i>			
B.7.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	Yes. The monitoring methodology is used from ACM0002 which is approved by the CDM Meth.Panel.	OK	OK
B.7.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	Yes. ACM0002 is the baseline and the monitoring methodology and it is applicable for the project activity since the project activity is the installation of hydro power plant, it results in new reservoir and the power density of the plant is 359 W/m ² which is greater than 4 W/m ² , the characteristics of the grid is available and the project does not involve switching from fossil fuels to renewable energy sources at the project site.	OK	OK
B.7.3. Does the monitoring methodology reflect good monitoring and reporting practices?	Yes. The monitoring methodology reflects good monitoring and reporting practices.	OK	OK
B.7.4. Is the discussion and selection of the monitoring methodology transparent?	Yes. The discussion and selection of the monitoring methodology are transparent.	OK	OK
B.7.5. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	Yes. The monitoring data (EG) will be provided from PMUM webpage and the data's will be archived at least for 2 years after the end of the last crediting period.	OK	OK
B.7.6. Are the choices of project GHG indicators reasonable?	Yes. EG generated chosen as the GHG indicator and it is reasonable since it is the requirement of the methodology and GHG emissions can be calculated by this data.	OK	OK
B.7.7. Will it be possible to monitor / measure	Yes, it is possible to monitor the EG generated which is the	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
the specified project GHG indicators?	specified GHG indicator by PMUM web pages and project owner records. Since it is one of the requirement of the work and not special for the emission reduction calculation.		
B.7.8. Will the indicators give opportunity for real measurements of achieved emission reductions?	Yes, the indicators give opportunity for real measurements of archived emission reductions.	OK	OK
B.7.9. Will the indicators enable comparison of project data and performance over time?	Yes, the indicators enable comparison of project data and performance over time.	OK	OK
B.8. Details of the baseline and its development			
B.8.1. Is the date of completion provided?	No, the date of completion is not provided in PD	CL10	OK
B.8.2. Is contact information provided?	Yes, the contact information is provided.	OK	OK
B.8.3. Is the person/entity is also a project participant?	Yes, the person is also a project participant.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project / Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>			
C.1. Is the project's starting date clearly defined ?	Yes, the project start date is 24 April 2005. But regarding to VCS rules crediting period start date is chosen as 28 March 2006.	OK	OK
C.2. Is the project's operational lifetime clearly defined and reasonable?	Yes, the operational lifetime of the project is 40 years and 0 months which is in accordance with the production license.	OK	OK
C.3. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	Crediting period is chosen as 10 years and and it is planned to be extended 2 more periods to a total crediting period of 30 years which is appropriate to VCS rules.	OK	OK
D. Environmental and Social Impacts <i>Documentation on the analysis of the environmental and social impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>			
D.1.1. Has an analysis of the environmental and social impacts of the project been sufficiently described?	Yes, the analysis of environmental and social impacts of the project been sufficiently described.	OK	OK
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	For this project no EIA is required since the project has an official letter from ministry that project is no subjected to EIA law.	OK	OK
D.1.3. Will the project create any adverse environmental or social effects?	No, the project does not create any adverse environmental or social effects.	OK	OK
D.1.4. Are transboundary environmental and social impacts considered in the analysis?	No, transboundary environmental and social impacts are not considered in the analysis.	OK	OK
D.1.5. Have identified environmental and social impacts been addressed in the project design?	There are no negative impacts of the project activity.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
D.1.6.Does the project comply with environmental legislation in the host country?	Yes, the project is in accordance with the environmental legislation of Turkey.	OK	OK
E. Stakeholder Comments <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>			
E.1.1.Have relevant stakeholders been consulted?	The stakeholder consultation is not needed regarding to regulation since the project is not subjected to EIA. It has been verified with the official letter from the ministry. However the project owner conducted a meeting to get the comments about the project. The meeting has been conducted with meeting the following people who has responsibilities for the project location management. - Governor of Kahramanmaras - Director of Kahramanmaras Regional Forestry Department - Director of Andirin Forestry Department - Village headman of Bulgurkaya village	OK	OK
E.1.2.Have appropriate media been used to invite comments by local stakeholders?	Ref. E.1.1 Stakeholder consultation is not required since the project is not subjected to EIA law.	OK	OK
E.1.3.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?	Ref. E.1.1 Stakeholder consultation is not required since the project is not subjected to EIA law.	OK	OK
E.1.4.Is a summary of the stakeholder	Yes, the summary of stakeholder comments provided in section	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl.	Final Concl.
comments received provided?	6 of PD. The outcome of the stakeholder consultation defined as positive since it will create new jobs for the local people.		
E.1.5.Has due account been taken of any stakeholder comments received?	Stakeholder comments were positive for the project activity since it created new jobs for the local people. It is verified during the site visit by social insurance records.	OK	OK

TABLE 2 BASELINE AND MONITORING METHODOLOGIES: ACM 0002 VERSION 9

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology			
1. 1. Applicability			
1.1.1. Does the project generate electricity from a renewable source?	Yes. The project is hydro power plant and generates electricity from the water.	OK	OK
1.1.2. Is the power connected to the grid?	Yes. The power plant is connected to the grid.	OK	OK
1.1.3 If answer to question above is 'No', whether it displaces the electricity generated in grid?	Not applicable	-	-
1.1.4 Is the baseline methodology used in conjunction with the approved monitoring methodology ACM0002	Yes. The baseline methodology is used in conjunction with the approved monitoring methodology ACM0002.	OK	OK
1.1.5 Does the project relate to electricity capacity additions from renewable sources?	Yes. The project is a grid connected renewable power generation project which adds electricity capacity from hydro power generation.	OK	OK
1.1.6 Does proposed project falls in either of the categories – Green filed Power Project, Power capacity expansion, Energy efficiency Improvement / Fuel Switch	The project falls under the category of green filed Power Project.	OK	OK
1.1.7 Can the geographic and system boundaries for the relevant electricity grid be clearly identified?	Yes, the geographic and system boundaries for the national electricity grid can be clearly identified.	OK	OK
1.1.8 Is the information on the characteristics of the grid available?	Yes. The information on the characteristics of the national electricity grid can be clearly identified in TEIAS web page.	OK	OK
1.1.9 Will the project consume in-house biomass or will it be purchased from outside?	Project will not consume biomass in any stage, since it is a hydropower plant.	OK	OK
1.1. 10 Will implementation of Project result in increase in processing capacity of raw input?	Implementation of the Project will not result in increase in processing capacity of raw input.	OK	OK
1.1.12 Will biomass to be used by project is stored for more than one year?	This Project does not use biomass.	OK	OK
1.11 Will biomass require significant energies (like Processing) other than transportation?	Ref. to 1.1.12	OK	OK
1.12 Is material and energy balance (heat and steam	n.a.	-	-

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
requirements for the processes) information available?			
1. 2. Project boundary			
1.2.1. Did the project participant account for the CO2 emission from electricity generation in fossil fuel fired power that is displaced due to project?	Yes, the project participant account for the CO2 emission from electricity generation in fossil fuel fired power since it is required for the selected baseline alternative regarding to ACM0002. (Table 2)	OK	OK
1.2.2 Did the project participant account for the CO2 emission from Heat generation in fossil fuel based power that is displaced due to project?	n.a.	-	-
1.2.2. Does the spatial extent of the project boundary include the power plant at project site, means of transportation of biomass and all power plants connected physically to the electricity system that the project power plant is connected to?	Yes, the project boundary includes all power plants at the project site. There is no biomass transportation.	OK	OK
1.2.3 Is biomass dumped or left to decay or burned in uncontrolled manner without utilizing for energy purposes most likely scenario?	n.a.	-	-
1.2.4 If answer to Question 1.2.3 is Yes, then are CH4 emissions in the project boundary are included?	n.a.	-	-
1.2.5 If answer to Question 1.2.3 is Yes, then are CH4 emissions calculated in a conservative manner using emission factors for uncontrolled burning of biomass?	n.a.	-	-
1.2.6 Whether choice of inclusion/exclusion CH4 emissions in project and baseline are documented in PD?	CH4 emissions are excluded in baseline emissions regarding to the methodology. In section 4.3. it is justified that project emission from reservoir is 0 since power density is above 10 W/m2.	OK	OK
1.2.7. Is the regional project electricity system identified by the spatial extent mekansal kapsam of the power plants that can be dispatched dađıtım without significant transmission constraints kısıt?	The system of the electricity grid is not regional in Turkey. There is one grid and it is national.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1.2.8 Whether N2O has been excluded as GHG source within the project boundary?	N2O is negligible regarding to the ACM0002 methodology.	OK	OK
1.2.9. Are the assumptions made in determining the project electricity system defined and justified?	Yes, the assumptions made in determining the project electricity system defined and justified.	OK	OK
1.2.10. Does the application of this methodology result in a clear grid boundary?	Yes, the application of this methodology results in a clear grid boundary. The grid is a national grid.	OK	OK
1.2.11. Does the application of this methodology result in a given country specific variations in grid management policies?	n.a.	-	-
1.2.12. If answer to question is yes then whether DNA of the host country provides the delineation of grid boundaries.	n.a.	-	-
1.2.13. If answer to question is no whether DNA guidance is available for defining the boundary.	There is no DNA in Turkey.	-	-
1.2.14. If answer to question is no whether the layered dispatch system (e.g. state/provincial/regional/national) the regional grid is used	There is no layered dispatch system in Turkey. The project uses national grid.	OK	OK
1.2.15. If the regional grid is not used whether the national or state grid is used.	There is no regional grid in Turkey so national grid used.	OK	OK
1.3. Identification of alternative baseline scenarios			
1.3.1. Are Realistic and credible alternatives separately determined for power, biomass and heat?	Yes, two baseline alternatives determined for power which is realistic and credible. Please see table1 B.4.1.	OK	OK
1.3.2. Are the various options for alternatives explained in PD?	Yes, the various options for alternatives explained in PD section 2.5.	OK	OK
1.3.3. Is the explanation of these options transparent and complete	Yes, the explanations of the baseline alternatives are transparent and complete.	OK	OK
1.3.4 Did the project participant provide evidence and supporting documents to exclude baseline options that do not comply with legal and regulatory requirements; or depend on key resources such as fuels, materials or	Two baseline scenarios defined in PD section 2.5. One of them is generation of the same amount of the electricity from the grid and the second one is import of the same amount of the electricity from the neighbour countries. Importing from	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
technology that are not available at the project site?	neighbour countries excluded since they are unable to generate high amounts of electricity. Only imported electricity are the small amounts for the peak demands. The exclusion reason verified with TEIAS (electricity operator) web page.		
1.3.5 Are the calculations for baseline are as per latest version of ACM0002 as required by this methodology?	Yes, the baseline calculations has been done by ACM0002 version9.	OK	OK
1.3.6 Are transmission & Distribution losses neglected as required by the methodology?	The transmission and distribution of the electricity is under TEIAS control. It is not considered for the baseline calculations.	OK	OK
1.3.7 Is quantity of electricity required for operation of plant subtracted?	Yes, the quantity of the electricity required for operation of the plant subtracted. TEIAS employees also record electricity consumption of the plant and it is subtracted from PMUM (Electricity Market Financial Settlement Center) pages.	OK	OK
1.3.8 Where EG-historical is the average of historical electricity delivered by the existing facility to the Grid, whether spanning all data from the most recent available year (or month, week or other time period) to the time at which the facility was constructed, retrofit, or modified in a manner that significantly affected output (i.e., by 5% or more), expressed in MWh per year. A minimum of 5 years (120 months) (excluding abnormal years) of historical generation data is required in the case of hydro facilities.	n.a.	-	-
1.3.9. Whether a minimum of three years data is referred and used in case the project is non-hydro?	n.a.	-	-
1.3.10. Is it required to estimate the point in time when the existing equipment would need to be replaced in the absence of project?	Since the project activity is an installation of a new power plant this question is not applicable.	-	-
1.3.11 If the answer to question is Yes whether project participants have taken any of the two approaches, indicated in the ACM0002 into account?	n.a.	-	-

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1.3.12 Whether the typical average technical lifetime of the type equipment is determined and documented taking into account common practices in the sector and country e.g. based on industry surveys, statistics, and technical literature?	The project design is based on 50 years and it is common for the sector.	OK	OK
1.3.13. Whether the common practices of the responsible practices of the responsible company regarding the replacement schedules is evaluated and documented, e.g. based on historical replacement records for such equipment?	n.a.	-	-
1.3.14. Whether the baseline emission factor is calculated as a combined margin consisting of the combination of operating margin (OM) and build margin factors according to three steps indicated in the methodology ACM0002?	Yes, the combined margin calculations have been done in accordance with the ACM0002 methodology steps.	OK	OK
1.3.15 Whether the weighted average applied by project participant is fixed for a crediting period.	Ex-ante calculation selected for the calculation so weighted average is fixed for a crediting period.	OK	OK
1.3.16. Whether operating margin emission factors calculations are based on one of the four methods described in the methodology ACM 0002?	Simple OM method is selected to calculate the operating margin emission factor.	OK	OK
1.3.17 Is the most likely baseline scenario 'electricity production from other sources feeding into the grid?	Yes, the most likely baseline scenario is electricity production from other sources feeding into the grid.	OK	OK
1.3.18 If the project modifies or retrofits an existing electricity generation facility, is the guidance by EB08 taken into account?	n.a.	-	-
1.4. Additionality			
1.4.1. Was the additionality of the project demonstrated and assessed using the latest version of the "Tool for demonstration and assessment of additionality"?	Please see B.6.1.1.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1.5 Project Emissions			
1.5.1. Have the relevant project emissions indicators been considered?	Regarding to the methodology if the power density of the project activity is greater than 4 W/m ² and less than or equal to 10 W/m ² project emissions should be calculated. Since the power density is 359 W/m ² project emissions are not considered.	OK	OK
1.5.2 Are the project emissions arising out of transportation of biomass and/or on site use of fossil fuel and/or Co ₂ emissions due to on site electricity consumption and/or Methane emissions from combustion of biomass residues?	Project emissions are negligible regarding to the methodology since power density is above 10 W/m ² .	OK	OK
1.5.3 Is the approach for project emissions conservative and transparent?	Yes, the project emissions conservative and transparent.	OK	OK
1.5.4 In case of Methane emissions due to combustion of biomass, are the relevant IPCC values are taken in to account with appropriate uncertainty?	n.a.	-	-
1.6. Baseline Emissions			
1.6.1. Are the baseline emissions determined according to the formula $BE_y = EG_y \times EF_y$?	Yes. The baseline emissions are determined according to the formula $BE_y = EG_y \times EF_y$	OK	OK
1.6.2. Was the Emissions Factor for displaced electricity calculated as in ACM0002?	Yes. The Emissions Factor for displaced electricity was calculated as in ACM0002	OK	OK
1.6.3 Were the baseline emissions for heat correctly represent the existing situation of heat generation?	Not applicable.	-	-
1.6.4 Whether 'life time aspects' are taken in to account if required so by applicable scenario?	No. There is no applicable scenario which required taking in to account "life time aspects".	OK	OK
1.6.5 Does project account for baseline emissions due to natural decay or uncontrolled burning of anthropogenic sources of biomass residues?	Not applicable.	-	-
1.6.6 Does project account for quantity of biomass residues used as a result of the project?	Not applicable.	-	-

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1.7. Leakage			
1.7.1. Was the leakage considered?	Leakage is negligible regarding to the methodology ACM0002.	OK	OK
1.7.2. Have any credits been claimed for the project on account of reducing the emissions due to power plant construction, fuel handling and land inundation below the level of the baseline scenario?	No credits been claimed for the project on account of reducing the emissions due to power plant construction, fuel handling and land inundation below the level of the baseline scenario	OK	OK
1.7.3 Has it been demonstrated that biomass availability from the region is abundant enough & that the use of the biomass residues does not result in increased fossil fuel consumption elsewhere?	Not applicable	-	-
1.7.4 Is this demonstration done through one of the options L1 to L3 as recommended by the methodology?	Not applicable	-	-
1.7.5 When either L2 or L3 is chosen as an option, the radius for procurement of biomass is at least 20 km and not more than 200 km in any case?	Not applicable	-	-
1.7.6 Where Project cannot demonstrate the procurement of biomass in above stated limits, is leakage penalty applied?	Not applicable	-	-
1.8. Emission Reduction			
1.8.1. Did the emissions reductions were determined according to the formula $ER_y = ER_{heat,y} + ER_{electricity,y} + BE_{biomass,y} - PE_y - L_y$	Since there is no heat production neither biomass use emission reduction calculated as $ER_y = ER_{electricity,y} - PE_y - L_y$	OK	OK
1.8.2 Are the emission reduction calculations for displacement of power done as appropriate to chosen scenario?	Yes. The emission reduction calculations for displacement of power were done as appropriate to chosen scenario.	OK	OK
1.8.3. Were all values chosen in a conservative manner and was the choice justified?	Yes, all values chosen in a conservative manner and the choice justified. All calculations have been checked by the baseline specialist and the verifier.	OK	OK
1.8.4. Whether an estimate of likely project emission reductions for the proposed crediting period is prepared	The estimated emission reductions for the crediting period is prepared as part of the PD in table 2.	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
as part of the PD?			
1.8.5. Whether the estimate in principle employs the same methodology ACM0006?	-	-	-
1.8.6. Whether the emission factor is determined ex-post during monitoring?	The emission factor is determined ex-ante.	OK	OK
1.8.7. If yes whether project participants have used models or other tools to estimate the emission reductions prior to validation?	Not applicable	-	-
2. Monitoring Methodology			
2.1. Applicability			
2.1.1. Does the project generate electricity from a renewable source?	Yes. The project generates electricity from water.	OK	OK
2.1.2. Is the power connected to the grid?	Yes. The project is connected to the grid.	OK	OK
2.1.3. Does the project relate to electricity capacity additions from renewable sources?	Yes. The project relate to electricity capacity additions from hydro sources.	OK	OK
2.1.4. Is fuel switch done in the process?	No, fuel switch is not done in the process.	OK	OK
2.1.5. Can the geographic and system boundaries for the relevant electricity grid be clearly identified?	Yes, the geographic and system boundaries of the national grid can be clearly identified from TEIAS web page.	OK	OK
2.1.6. Is the information on the characteristics of the grid available?	Yes. The information on the characteristics of the grid is available.	OK	OK
2.2. Monitoring Methodology			
2.2.1. Does the monitoring plan require monitoring of increased electricity generation from the proposed project?	Yes, the monitoring plan requires monitoring of increased electricity generation.	OK	OK
2.2.2 Does monitoring takes in to account the lower value between (a) the net quantity of electricity generated in the new power unit that is installed as part of the project and (b) the difference between the total net electricity generation from firing the same type(s) of biomass at the project site (EG total, y) and the historical generation of	Not Applicable	-	-

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
the existing power unit(s), (EG historic, 3yr) based on the three most recent years.			
2.2.3. Does the methodology requires monitoring of Data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin (OM), consistent with ACM0002?	Since the emission factor calculation has been done ex-ante, it is not needed to recalculate the OM during the crediting period. Regarding to this there is no data to be monitored during the crediting period for the OM calculations.	OK	OK
2.2.4. Does the monitoring plan require monitoring of Data needed to recalculate build margin emission factor, if needed, consistent with ACM0002?	Since the emission factor calculation has been done ex-ante, it is not needed to recalculate the BM during the crediting period. Regarding to this there is no data to be monitored during the crediting period for the BM calculations.	OK	OK
2.2.5. Does the monitoring plan require monitoring of data needed to calculate fugitive carbon dioxide and methane emissions and carbon dioxide emissions from combustion of fossil fuels required to operate the geothermal power plant?	n.a.	-	-
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures			
2.3.1. Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?	The generated electricity is measuring from two metering equipments which are under control of TEIAS. The difference between two measuring equipments can not exceed % 0,2. It is periodically checking by TEIAS.	OK	OK
2.3.2 Is frequency of monitoring the parameters defined hourly/daily?	The generated electricity is monitoring monthly basis.	OK	OK

TABLE 3 LEGAL REQUIREMENTS

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1. Legal requirements			
1.1. Is an identification of relevant local laws included in the PD?	The relevant local laws identified in section 1.10 of PD. EIA regulation added to the list however in environmental impact assessment section it is mentioned that the project is not subjected to EIA law regarding to the license date. Please provide an reliable evidence.	CAR2	OK
1.2. Is the project environmentally licensed by the competent authority?	The project has EIA is not required certificate and it has been verified by the validation team.	OK	OK
1.3. Are the conditions of the environmental license being met?	It has been verified that environmental licence conditions are being met with the project activity.	OK	OK
1.4, Are the conditions of the Designated National Authority being met?	There is no DNA in Turkey.	-	-

TABLE 4 CHECKLIST BASED ON METHODOLOGICAL TOOL FOR ASSESSMENT OF ADDITIONALITY

<i>Checklist question</i>	<i>Comments</i>	Draft Concl	Final Concl
1. Additionality of a project activity			
a. Does the VCS-PD state the latest version of the additionality tool being used?	It is stated that VCS Methodology has been used to assess additionality in version 1 of PD. However the Methodological Tool for demonstration and assessment of additionality should be used regarding to the methodology and VCS requirement. http://www.v-c-s.org/faq.html#question21 Please correct the ref. document as Additionality Document.	CAR3	OK
b. Has the tool used the following steps to assess additionality 1. Identification of alternatives to the project activity 2. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible 3. Barriers analysis; and 4. Common practice analysis.	Yes, following steps used from additionality tool to demonstrate additionality; 1. Identification of alternatives to the project activity 2. Barriers analysis 3. Common Practice Analysis	OK	OK
c. In Step 1 have all the sub-steps as below followed Sub-step 1a: Define alternatives to the project activity Sub-step 1b: Consistency with mandatory laws and regulations	Yes, in step-1 all sub-steps followed. The alternatives defined and it is stated that project is not mandated by any enforced law, statute or other regulatory framework.	OK	OK
d. Have the following alternatives been included while defining alternatives as per sub-step 1a 1. (a) The proposed project activity undertaken without being registered as a	1.a the project activity undertaken without being registered as a VCS project activity did not identified in section 2.5 step1 of PD. 2.b Other realistic and credible alternative scenarios identified.	CAR4 OK	OK OK

VCS project activity 2. (b) Other realistic and credible alternative scenario(s) to the proposed VCS project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology				
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e. Has the project participant included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed VCS project activity and that have been implemented previously or are currently being introduced in the relevant country/region.	No, it is not stated in PD.	CL11	OK
f. Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	The proposed project activity undertaken without VER project is not identified.	CL12	OK
g. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.	Yes, the alternative is in compliance with all mandatory legal and regulatory requirements.	OK	OK
h. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country.	n.a.	-	-
i. Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations done correctly? Please state the	The outcome of Step 1.b is identified alternative scenario is in compliance with the relevant legislation requirements.	OK	OK

outcome.			
j. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3.)	PP selected Barrier Analysis.		
k. In step 2 have all the sub-steps as below followed? 1. Sub-step 2a: Determine appropriate analysis method 2. Sub-step 2b: Option I. Apply simple cost analysis 3. Sub-step 2b: Option II. Apply investment comparison analysis 4. Sub-step 2b: Option III. Apply benchmark analysis 5. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III): 6. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III):	n.a.	-	-
l. In sub-step 2a has the determination of appropriate method of analysis done as per the guidance as below 1. Simple cost analysis if the VCS project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than VCS related income (Option I). 2. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification	n.a.	-	-
m. Has the below guideline followed for sub-step 2b	n.a.	-	-

Option I. Apply simple cost analysis 1. Document the costs associated with the VCS project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.			
n. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis 1. Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	n.a.	-	-
o. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis 1. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context. 2. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.	n.a.	-	-

3. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.			
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p. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III): 1. Calculate the suitable financial indicator for the proposed VCS project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country. 2. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the VCS-PDD, or in separate annexes to the VCS-PDD. 3. Justify and/or cite assumptions. 4. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions 5. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated. 6. Present in the VCS-PDD a clear comparison	n.a.	-	-
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of the financial indicator for the proposed VCS activity Please specify details for above	n.a.		
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q. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III): 1. Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.	n.a.	-	-
r. Has the outcome of Step 2 clearly mentioned with justification?	n.a.	-	-
s. In step 3: Barrier analysis have all the sub-steps as below followed? 1. Sub-step 3a: Identify barriers that would prevent the implementation of the proposed VCS project activity 2. Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity):	Yes, barrier analysis has been applied with following sub-steps; 1- Identification of barriers that would prevent the implementation of the proposed project activity. 2- Showing that identified barriers would not prevent the implementation of at least one of the alternatives.	OK	OK
t. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed VCS project 1. (a) Investment barriers: For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed VCS project activity is to be implemented, as demonstrated by the credit	Investment, Technical, Prevailing Practice and Institutional barriers defined as the barriers that would prevent the implementation of the project. Investment Barrier defined in terms of; * Costs rise during long planning phase, * High level of Indemnities * Insufficient Feasibility	OK	OK

rating of the country or other country investments reports of reputed origin. 2. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and logistics for maintenance of the technology, Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed VCS project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region. 3. (c) Barriers due to prevailing practice: The project activity is the “first of its kind”. 4. (d) Other barriers, preferably specified in the underlying methodology as examples.	It is stated that employing technical staff needed for the operation and maintenance of the project was difficult as appropriately educated local people were not sufficiently available. The project owner bring technical staff from distant locations. The project is not the first of its kind. The main barrier for the project is the institutional barrier since there is 7 years between the first application and getting the permits for the project activity. The Project has first been conceptualized as a BOT(Build – Operate – Transfer) project and the first pre-feasibility study submitted to the Energy Ministry in 1996 was designed in this framework. However, BOT projects were supposed to sign a separate sales agreement with the government, backed by Treasury guarantee, therefore the bureaucratic procedures were	OK OK OK OK	OK OK OK OK
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	extremely lengthy and cumbersome. After BOT agreement signed between the project owner and the ministry in July 2000, the electricity market law changed in March 2001. The project activity obligated to apply new permit structure. With the new structure the project owner get the licence in July 2003. Institutional Barrier verified during site visit and it found acceptable.	
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u. Has the outcome from Step 3a clearly mentioned in PDD?	The barriers identified and they are clearly explained in terms of step 3a in PD.section 2.5	OK	OK
v. Has the below guideline followed for Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity):	For sub-step 3b it is identified that the barriers would not prevent the implementation of thermal power plants.	OK	OK
1. If the identified barriers also affect other alternatives, explain how they are affected less strongly than they affect the proposed VCS project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be prevented by the barriers identified in Sub-step 3a is not a viable alternative, and shall be eliminated from consideration.	The investment barrier, technological barrier and other barriers would not prevent the implementation of the thermal power plants. Investment Barrier; Less initial investment is needed to generate same amount of electricity from thermal power plants. It is verified with EPDK web page. Also financiers, investors and authorities are much more familiar with thermal power plants this makes to get the approval of funds and licence easier.	OK	OK
2. provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	Technological Barrier; Thermal power plants are dominant in generation of electricity and it does not involve any major technological barriers. Also location of thermal power plants can be chosen by the investor regarding to the conditions but HEPP's does not have this opportunity and it makes difficult to find technical employee in the same region.	OK	OK
3. The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations, companies,	Other Barriers; The national energy policy is based on fossil fuels since the location of Turkey is very strategic for petroleum since it is between Europe and petroleum reserves. This makes renewable energy importance secondary. And no additional supports on governmental level like thermal power plants. It is validated by the validation team with the national news(Market surveys) and EPDK (Energy Market Regulatory Authority)) web page.	OK	OK

bilateral/multilateral institutions, etc; (c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.			
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w. Has the outcome from Step 3 clearly mentioned in PDD?	It is clearly identified that identified barriers would not prevent the implementation of alternative scenario.	OK	OK
x. In step 4: Common practise analysis have all the sub-steps as below followed? 1. Sub-step 4a: Analyze other activities similar to the proposed project activity 2. Sub-step 4b: Discuss any similar Options that are occurring	The following steps used to demonstrate common practice analysis; - Analysing other similar project activities. - Discussing similar options that are occurring	OK	OK
y. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity 1. Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other VCS project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	In PD section 2.5 it is stated that there are several types of HEPPs in Turkey. These are listed as ; - Owned by the public power generation company.(EUAS) - Concessionary Companies which are not obligated to the new electricity market law.(Published in 2001) - Transfer of Operation rights which are publicly owned. - Autoproducers are generate electricity for their own use or organized industrial zones. - Built-Operate-Transfer model are not subject to free market conditions. They are build before new electricity market law which is published in 2001. - Independent Power Producer HEPP's are constructed and operated under free liberal market conditions and the ratio of them is under %1. Since the project activity is IPP HEPP the project compared with other IPP HEPP's.	OK	OK
z. Has the below guideline followed for Sub-step 4b:	The IPP HEPP list is available in PD Table 16. IPP HEPP's are	OK	OK

Discuss any similar Options that are occurring: 1. If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of data/information.	compared regarding to their licence dates in the region regarding to the institutional barrier. It is verified that the project activity is the only project in the region with its licence date. Kalelati project has the license date which is in the same year but that project also owned by the project owner and it applied for VCU revenues.		
æ. Has the outcome from Step 4 clearly mentioned in PDD?	It is stated that project activity can not be considered as common practice	OK	OK
ø. Has it been proved that the project is additional?	The project is proved that the project is additional.	OK	OK

TABLE 5 RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in Table 1/2/3/4	Summary of project owner response	Validation team conclusion
CL1- Please give the version number of PD.	Table 1 A.1.	The PD is updated accordingly upon request.	The version number of PD is added to PD. <u>The clarification request closed.</u>
CL2- In section 1.7 of PD grid conditions prior to the project activity is presented. Please also give environmental conditions of the project area prior to project activity in section 1.7 of PD.	Table1 A.2.4.3	The PD is updated accordingly upon request.	Environmental conditions prior to the project activity have been added to section 1.7 of PD. It is stated that "The project area, which is sparsely populated, is not located on a forest area either and was not being used for any relevant irrigation or feedstock purposes". It is also verified during site visit of the project. <u>The clarification request closed.</u>
CL3- There is no discussion in the PD that engineering reflects current good practices.	Table1 A.4.3.1	The PD is updated accordingly upon request.	The discussion about the engineering has been added in PD section 1.9. Project's electro-mechanical equipment is controlled and monitored with latest system. It is decided engineering reflects good practices.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in Table 1/2/3/4	Summary of project owner response	Validation team conclusion
			<u>The clarification request closed.</u>
CL4- Please state if the project 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.	Table1 A.4.3.2	The PD is updated accordingly upon request.	The project uses an efficient technology in the country. <u>The clarification request closed.</u>
CL5- It is not clear if the project technology is not likely to be substituted by other or more efficient technologies within the project period. Please give proof.	Table1 A.4.3.3	Available license and permits are valid for the current design. The Project has been designed and realized with latest levels of best available technologies. Therefore, the Project is based on the most efficient and appropriate technologies and no substitution by another technology is planned or foreseen.	<u>The clarification request closed.</u>
CL6- Please state in PD section 1.9 if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.	Table1 A.4.3.4	The PD is updated accordingly upon request.	It is stated in PD that, apart from regulatory needs the employees will be trained for maintenance, operation, control and safety. Also it is mentioned that "Project foresees extensive initial training programs for its employees to ensure their safety and successful operation of the Project according to the design and the budget is being allocated such that these training programs are included."

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in Table 1/2/3/4	Summary of project owner response	Validation team conclusion
			<u>The clarification request closed.</u>
CL7- Please state in section 1.9 of PD if the project makes provisions for meeting, training and maintenance needs.	Table1 A.4.3.5	The PD is updated accordingly upon request.	It is stated in PD that, apart from regulatory needs the employees will be trained for maintenance, operation, control and safety. Also it is mentioned that "Project foresees extensive initial training programs for its employees to ensure their safety and successful operation of the Project according to the design and the budget is being allocated such that these training programs are included." <u>The clarification request closed.</u>
CL8- Please state that there is no public funding involved in the proposed project.	Table1 A.4.5.1	There is no public funding in the Project. The Project has not been financed by Official Development Aids (ODA).	<u>The clarification request closed.</u>
CL9- Please correct the version of the methodology as v.09	Table1 B.1.1	The PD is updated accordingly upon request.	The needed correction has been done. <u>The clarification request closed.</u>
CL10- No, the date of completion is not provided in PD	Table1 B.8.1	The PD is updated accordingly upon request (the date on the cover page).	<u>The clarification request closed.</u>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in Table 1/2/3/4	Summary of project owner response	Validation team conclusion
CL11- Project participant has not included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region.	Table4 1.e	The PD is updated accordingly upon request.	The project activity is compared with the thermal power plants which provide a comparable output and which are implemented previously. <u>The clarification request closed.</u>
CL12- The proposed project activity undertaken without VER project is not identified.	Table4 1.g	The PD is updated accordingly upon request (alternative added).	The relative alternative added. <u>The clarification request closed.</u>
CAR1 - Yes, all methodological choices are explained in Table 09. However in version 1 of the PD, VCS 2007. Section 5.8 defined as a methodology. Regarding to VCS rules and the ACM0002 it should be the additionality tool of the methodology.	Table1 B.6.1.1	Please note that the GHG Protocol and the VCS 2007 Section 5.8 has only been used as guidance, not as a tool or a methodology. All methodologies used in the PD are UNFCCC-approved. The PD is updated accordingly upon request.	<u>The corrective action request closed.</u>
CAR2- The relevant local laws indentified in section 1.10 of PD. EIA regulation added to the list however in environmental impact assessment section it is mentioned that the project is not subjected to EIA law regarding to the license date. Please provide an reliable evidence.	Table3 1.1	Official letter from the Ministry of Environment and Forestry has been send to DOE.	The official letter from Ministry of Environment and Forestry has been seen for verification. The project is not subjected to EIA law. <u>The corrective action request closed.</u>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in Table 1/2/3/4	Summary of project owner response	Validation team conclusion
CAR3- It is stated that VCS Methodology has been used to assess additionality, it should be corrected as The Methodological Tool for demonstration and assessment of additionality. http://www.v-c-s.org/faq.html#question21 Please correct the ref. document as Additionality Document.	Table4 1.a	The PD is updated accordingly upon request.	<u>The corrective action request closed.</u>
CAR4- 1.a the project activity undertaken without being registered as a CDM project activity did not identified in section 2.5 step1 of PD. 2.b Other realistic and credible alternative scenarios identified.	Table4 1.d	The PD is updated accordingly upon request (alternative added). (Ref.CL12)	<u>The corrective action request closed.</u>

7 ANNEX B – VALIDATION TEAM CV'S

Internal Technical Reviewer : Ashok Mammen - PhD (Oils & Lubricants)

Bureau Veritas Certification - Internal Technical Reviewer

Over 20 years of experience in chemical and petrochemical field. Dr. Mammen is a lead auditor for environment, safety and quality management systems. He is also a lead verifier and tutor for GHG projects and has been involved in the validation and verification processes of more than 60 CDM/JI/VCS and other GHG projects.

Lead Verifier : Ms. Burcu Mutman – Environmental Engineer

Bureau Veritas Certification – Senior Technical Specialist

Burcu Mutman is an auditor for environment, safety and quality management systems.

She is also lead verifier for GHG projects. Bureau Veritas Certification Holding SAS – Internal Technical Reviewer

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