VALIDATION REPORT

Final

"Ceyhan 61.7 MW Hydropower Project"
in
Turkey

Report N° 2010-DG-03-ME

Revision N° 1.0

VALIDATION REPORT

Project Title:	Country:	Estimated VERs (tCO2e):
Ceyhan 61.7 MW Hydropower Project.	Turkey	147,566 annual average
Client:	**Client contact:**	
SUEN Ltd.	Aynur SEZER	
Report No.:	**Revision:**	**Date of this report:**
2010DG03ME	1.0	04/03/2011
Approved by (Final Report – DCI Director approval): Roberto Cavanna		**Date of approval:** 25/03/2011

Methodology

Number:	Version:	Title:	Scale	SS(s):
ACM0002	12.1.0 of 26/11/2010	Consolidated baseline methodology for grid-connected electricity generation from renewable sources.	Large	01

RINA Services S.p.A. (RINA), commissioned by SUEN Ltd., has performed the validation of the project activity "Ceyhan 61.7 MW Hydropower Project" in Turkey, with regard to the relevant requirements for VCS activities.

In conclusion, it is RINA's opinion that the project activity Ceyhan 61.7 MW Hydropower Project, in Turkey, as described in the PDD version 3 of 02/02/2011, meets all relevant requirements for VCS activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.1.0 of 26/11/2010 and meets the relevant VCS 2007.1 requirements and local legislation.

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Work verified by (Final Report – CRT person responsible approval)
Paolo Teramo

Keywords:
Climate Change, Kyoto Protocol, Clean Development Mechanism, Validation

Abbreviations

BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH_4	Methane
CL	Clarification Request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
DSI	State Hydraulic Works (Devlet Su Isleri)
EMRA	Electricity Market Regulatory Authority
EB	Executive Board
EIA	Environmental Impact assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
HEPP	Hydro Electric Power Plant
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
MW	Mega Watt
NGO	Non-governmental Organization
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TEIAS	Turkiye Elektrik Iletim A.S -Turkish Electricity Transmission company
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

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VCU	Voluntary Carbon Unit
VVM	Validation and Verification Manual

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1 INTRODUCTION

SUEN Ltd. has commissioned RINA to carry out the validation of the “Ceyhan 61.7 MW hydropower project.” project in Turkey.

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 objective of the Validation is to have an independent evaluation of a project activity by a designated operational entity against the requirements of the VCS 2007.1 on the basis of the project design document. In particular, the project's baseline, monitoring plan, and the project’s compliance with relevant VCS requirements and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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

The validation scope is to review the PDD against the VCS criteria which refers to VCS 2007.1 standard.

Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 VCS Project Description

The project activity involves the installation of two run-of-river hydro electric power plants (HEPP) with a total installed capacity of 61.7 MW by two diversion weirs located on the Ceyhan River, which is about 14 km northwest of Osmaniye City in South Anatolian Region of Turkey. The purpose of the project activity is to delivery electricity from renewable energy sources to Turkish National Grid.
The project includes Oskan (23.889 MW) and Berkman (37.815 MW) diversion weirs , located in South Anatolian Region of Turkey, on the Ceyhan River about 14 km northwest of Osmaniye City. Oskan and Berkman HEPPs of Ceyhan project are developed by ENOVA Energy Production Co. utilizing the 25 m head between the Aslantas Dam at the upstream of Ceyhan River and Cevdetiye irrigation structure at the downstream by two diversion weirs. The project geographical coordinates are: Oskan plant 37.224463 North and 36.252444 East; Berkman plant 37.168667 North and 36.233742 East. A first feasibility study report was issued on June 2003 /8/ based on what the construction of the project started on January 2008 but in March 2008 the feasibility study report /28/ was update because the water level of Cevdetiye diversion weir required updating the installed power of Berkman diversion weir, the output generation was re-calculated taking into consideration that 3 m^3/s of water is taken for thermal power plants located in the same area (Afsin Elbistan C and D). The project owner has been awarded the project after receiving the production license by EMRA on December 2006 for a period of 49 years /30/ and on January 2007 during the Board Meeting /16/.
The main purpose of the project is to generate electricity approximately 100.248 GWh/year and 139.698 GWh/year respectively by Oskan and Berkman. The electricity generated will be delivered to the Turkish National Grid through the 7.5 km Berke-Kadirli 154 kV energy transmission line and will reduce greenhouse gas emissions that would have otherwise occurred in the absence of the project activity by avoiding the electricity generation from fossil fuel sources. The expected average annual emission reduction is 147,566 tCO_2e; renewable crediting period of 10 years is chosen for the project activity.

1.4 Level of assurance

The level of assurance of the validation report is defined as high.

2 METHODOLOGY

Validation was conducted using RINA procedures in line with the requirements specified in the VCS standard and in the CDM M&P, the latest version of the CDM Validation and Verification Manual, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The validation consisted of the following three phases:

- Document review;
- Follow-up actions;
- The resolution of outstanding issues and the issuance of the final validation report.

The following sections outline each step in more detail.

2.1 Document Review

The PDD version 3 of 02/02/2011, version 2 of 12/10/2010 and version 01 of 10/09/2009/1/ in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan, the emission reduction calculations provided in the form of a spreadsheet, “6-CEYHAN CO2 V2.xls” version 2 of October 2010/5/, were assessed as part of the validation.

To address RINA corrective actions request and clarification requests, the project owner revised the PDD, and the PDD version 03 of 02/02/2011 /1/ is the latest version submitted for validation.

The following table lists the documentation that was reviewed during the validation.

/1/	SUEN LTD: CDM-PDD for project activity “Ceyhan 61.7 MW hydropower project.” in Turkey,

	version 3 of 02/02/2011 and pervious version 2 of 12/10/2010 and version 01 of 10/09/2009
/2/	CDM Executive Board: Validation and Verification Manual, version 01.2 of 30/07/2010
/3/	CDM Executive Board: Baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.1.0 of 26/11/2010
/4/	CDM Executive Board: Methodological tool "Tool to determine the emission factor for an electricity system", version 2 of 16/10/2009
/5/	SUEN Ltd – Emission reduction and emission factor calculation spreadsheet "6-CEYHAN CO2 V2.xls" – October 2010 and previous version of March 2010
/6/	SUEN Ltd – IRR calculation spreadsheet "12-CEYHAN IRR calculations V2.xls" – October 2010 and previous version of March 2010.
/7/	ENCEV (Energy and environmental investment and consulting limited company) and Istanbul Technical university environmental engineering department – Environmental Impact Assessment Report, April 2009.
/8/	Temelsu International Engineering Services Inc. - Feasibility Study Report Berkman & Oskan HEPP – July 2003
/9/	Electricity Market Regulatory Authority - Electricity Market Law No. 4628 of 03/03/2001
/10/	Survey and Development Administration electrical jobs – Energy efficiency Law No. 5627 of 18/4/2007.
/11/	Survey and Development Administration Electrical Jobs – Law on utilization of renewable energy resources for the purpose of generating electrical energy – Law 5346 of 18/05/2005
/12/	Enova Enerji Uretim A.S – Oskan/Berkman energy production projection, of October 2010
/13/	Temelsu International Engineering Services Inc. – Plant load factor, of 09/06/2010
/14/	Alstom Power Hidroelektrik Ur. Tes. Tic.ve Isl. Ltd Sti – Equipment lifetime, of 11/10/2010
/15/	Cummins Engine Company, Inc – Engine manufacturer's specification, of 08/05/1997
/16/	Enova Enerji Uretim A.S – Board meeting minute of 05/01/2007
/17/	Turkish electricity transmission corporation – Annual report 2008 (delineation of the national grid), of 2009.
/18/	Forestry Ministry - Forestry Law No. 6831 (Provision of the regulation on the implementation of amending regulation, 2003. Web site (Turkish language, retrieved on October 2010): http://www.resmi-gazete.org/6831/.
/19/	Environmental Ministry – Environmental Law No. 2872 of 08/09/1983 and modified on 13/05/2006
/20/	National Gazette No. 25150 - Regulation on procedures and principles of signing the agreement of utilization of water resources for the purpose of electricity production in the electricity market, of 06/06/2003.
/21/	National Gazette No. 26939 - Regulation on Environmental Impact Assessment, of 17/07/2008
/22/	Government bond rate – Turkish bank statics of 2007. Web site (Turkish language retrieved on October 2010): http://www.ziraat.com.tr/tr/bankamiz/faiz-ve-ucretler/aspx/eurobond.aspx
/23/	CDM-Executive Board – Methodological tool "Tool for the demonstration and assessment of additionality", version 05.2 of 26/8/2008.
/24/	CDM-Executive Board – Glossary of CDM Terms, version 05 of 19/08/2009
/25/	CDM-Executive Board – Guidelines for the reporting and validating of plant load factors, version 01 of 17/07/2009.
/26/	Voluntary Carbon Standard – Voluntary Carbon Standard 2007.1 of 18/11/2008
/27/	Voluntary Carbon Standard – Voluntary Carbon Standard Program Guidelines 2007.1 of 18/11/2008.
/28/	TEMELSU International Engineering Services Inc. - Revised feasibility Study Report Berkman

	& Oskan HEPP – March 2008
/29/	DSI (State Hydraulic Works) – Water use right agreement of 04/05/2006
/30/	EMRA (Electricity Market Regulatory Authority) – Production license for Ceyhan HEPPs of 21/12/2006
31/	Ministry of Environment and Forestry – EIA exemption certificate No. 2003/3 Berkman HEPP of 21/08/2008
/32/	Ministry of Environment and Forestry – EIA exemption certificate No. 2003/4 Oskan HEPP of 21/08/2008
/33/	Enova Enerji Uretim A.S. – Declaration of non-use of official development assistance of 30/07/2009.
/34/	Alstom Power Hidroelektrik Ur. Tes. Tic.ve Isl. Ltd Sti – Turbine electro mechanical contract of 22/11/2007.
/35/	TEIAS (Turkiye Elektrik Iletim A.S -Turkish Electricity Transmission company) – Emission factor data (2006-2008). Web site (Turkish language, retrieved on October 2010): www.teias.gov
/36/	American University – Country risk premium statics. Web site (English language, retrieved on October 2010) www.pages.stern.nyu.edu
/37/	Suen Ltd – Beta calculation spreadsheet submitted on February 2011
/38/	Stakeholder consultation meeting participant list – 10/09/2009
/39/	ENCEV and Istanbul Technical University - Public consultation report April 2009.
/40/	Energy and Natural Resources Ministry – Minutes of provisional acceptance for Oskan HEPP, of 03/06/2010
/41/	Energy and Natural Resources Ministry – Minutes of provisional acceptance for Berkman HEPP, of 20/08/2010 (unit 1) and 28/08/2010 (unit 3)
/42/	UNFCCC – Decision 17/CP.7 Modalities and procedure for a clean development mechanism as defined in article 12 of the Kyoto protocol, of 21/01/2002
/43/	Ministry of Energy and Natural Resources: Official Gazette No. 26510 of 02/05/2007 – Law on utilization of renewable energy sources for the purpose of generating electrical energy.
/44/	Industrial Development Bank of Turkey (TSBK) – Credit agreement signed with the project owner on 31/08/2009.

2.2 Follow-up actions

From 19/05/2010 to 20/05/2010, RINA visited Ceyhan River, 14 km Northwest of Osmaniye City, South Anatolian Region of Turkey to resolve questions and issues identified during the document review and to perform interviews with relevant stakeholders in the host country.

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	19-20/05/2010	Aynur SEZER Project Coordinator	SUEN Ltd.	- Introduction of the project - Project implementation and status - Consultation process for stakeholder's comments - Baseline determination of the project - Applicability of the selected methodology ACM0002 version 10 - Issues related to the
/b/	19-20/05/2010	Mehmet GOKOGLAN. Project specialist	SUEN Ltd.	
/c	19-20/05/2010	Mustafa TUYGUN Business development manager	NUROL	
/d/	19-20/05/2010	Bulent CAGIRGAN Project Manager	ENOVA	

				additionality - Emission reductions calculation - Monitoring plan

2.3 Resolution of outstanding issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project design.

To guarantee transparency a validation protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of validation and the results from validating the identified criteria. The validation protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed validation protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.
- The CDM requirements have not been met.
- There is a risk that the emission reductions cannot be monitored or calculate.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration. CARs, CLs and FARs identified are included in the validation protocol in Appendix A of this report.

Figure 1 Validation protocol tables

Validation Protocol, Table 1 - Requirement checklist					
Checklist Question	Reference	MoV	Comments	Draft Conclusion	Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in seven different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. For CAR, CL and FAR see the definitions above.	OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements.

Validation Protocol, Table 2 - Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Validation Conclusion
The CAR and/or CLs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CL is explained.	The responses given by the project participants to address the CARs and/or CLs.	The validation team's assessment and final conclusion of the CARs and/or CLs.

Validation Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Validation Conclusion
The FAR raised in table 1is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed prior to first verification.

2.4 Internal quality control

All the revisions of the validation report before being submitted to the client were subjected to an independent internal technical review to confirm that all validation activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

2.5 Validation team and the technical reviewer(s)

The validation team and the technical reviewers consist of the following personnel:

Role	Last Name	First Name	Country
Team Leader - VCS/CDM Validator	Valoroso	Rita	Italy
CDM Verifier (VCS applicant)	Candio	Stefano	Italy
Technical Reviewer 1	Teramo	Paolo	Italy
Technical Reviewer 2	Severino	Laura	Italy

3 VALIDATION FINDINGS

The findings of the validation related to the project, as described in the PDD version 03 of 02/02/2011 and previous version 02 of 12/10/2010 and version /1/ are stated in the following sections.

The validation requirements, the means of validation and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

3.1 Project Design

The objective of the proposed project activity is to provide electricity to the Turkish National Power Grid by the installation of two run-of-river HEPPs (i.e. no water storage facility would be built for both HEPPs) on the Ceyhan river in the city of Osmaniye, Turkey.
The project geographical coordinates of Oskan HEPP is 37.224463 North and 36.252444 East, whereas the coordinates of Berkman HEPP is 37.168667 North and 36.233742 East.
The two HEPPs of the proposed project activity are Oskan and Berkman. The total installed capacity of the proposed project is 61.704 MW, where the installed capacity of Oskan and Berkman HEPP is 23.889 MW and 37.815 MW, respectively. Both HEPPs would utilize the 25 m head between the Aslantas Dam at the upstream of Ceyhan River and Cevdetiye irrigation structure at the downstream for power generation. It is expected that the annual electricity production of Oskan and Berkman is 100.248 GWh and 139.698 GWh, respectively, where the electricity will be delivered to the Turkish National Grid through the 7.5 km Berke-Kadirli 154 kV energy transmission line.
The main facilities for both HEPPs comprise the embankment, spillway structure, powerhouse and the switchyard. It is expected that both HEPPs are planned to construct in 2 stages. The spillway structure and the power plant structure are expected to construct during the first stage of construction, and the upstream cofferdam for water diversion would be constructed during the second stage of construction.
A feasibility study report was first issued on July 2003 /8/, which indictaed that the construction of the project started on January 2008, however, as per the revised feasibility study report in March 2008 /28/ the water level of Cevdetiye diversion weir required updating the installed power of Berkman diversion weir, the output generation was re-calculated by taking into consideration of 3 m^3/s of water is taken for thermal power plants located in the same area (Afsin Elbistan C and D).
The project owner has been awarded the project after receiving the production license by EMRA on December 2006 for a period of 49 years /30/ and on January 2007 during the Board Meeting /16/.

The project activity contributes to sustainable development of Turkey by supplying zero GHG emitting renewable energy to the Turkish national grid, with the expected average annual emission reduction of 147,566 tCO_2e; improving the social, educational and economical conditions of the local people, by increasing the local income and job opportunities.

In particular the project proponent contributed to the well being of the region and inhabitants by the construction for example the Karagedik primary school. This is also confirmed during the site visit and the stakeholder's interviews.

3.1.1 Technology used

Based on the feasibility study report /28/ and purchase contract /34/, as well as the observation during the site visit, the following technical characteristic have been validated:

Parameter	Oskan HEPP	Berkman HEPP
Design flow	**1600 m^3/s**	**1600 m^3/s**
Project flow	**267 m^3/s**	**267 m^3/s**
Gross head	**10.50 m**	**14.50 m**
Tail water level	**72.50 m**	**58.00 m**

Crest elevation	**85.50 m**	**75.00 m**
Total installed capacity	**23.889 MW**	**37.815 MW**
Number of units	**3 x 7.963 MW**	**3 x 12.605 MW**
Type and manufacturer	**Pit Kaplan - ALSTOM**	**Pit Kaplan - ALSTOM**
Average annual power generation	**100.248 GWh/year**	**139.698 GWh/year**
Reservoir water level	**83.00 m**	**72.50 m**
Submerged area	**1,621,425.95 m^2**	**1,648,560.79 m^2**

The electricity delivered to the national grid by the project is estimated to be 239.946 GWh per year, based on the historical data of the river /28/ and the future flows of the upstream dams. The technology used in the power plants is a state of the art technology provided by Annex I Country (France) /34/ and the equipment lifetime is expected to be 20 years as per the supplier declaration /14/.
RINA was able to verify all the documented evidence listed above during the validation process and can confirm that data and considerations are complete and accurate, moreover, RINA confirms that the description of the proposed project activity, as contained in the PDD version 3 /1/ sufficiently covers all relevant elements, is accurate and completed and that it provides the reader with a clear understanding of the nature of the proposed project activity.

3.1.2 Project duration crediting time and project start date

The expected starting date of the project activity is 6/6/2010 when the Oskan HEPP started electricity generation after received the provisional acceptance by the Energy and Natural Resources Ministry /40/. The carbon crediting period and therefore the monitoring starts when the plant commences electricity generation; the crediting period is of ten years which may be renewed at most two times. The expected lifetime of the project starting in December 2006 /30/ is 49 years according the duration of the license obtained from the EMRA /30/. However, the equipment lifetime as per the supplier declaration is only 20 years /14/, thus the equipments may be renewed (as recommended) during the lifetime of the project activity according to the conditions of the equipment.

3.1.3 Ownership

The ownership of the project is evidenced by the energy production license issued by EMRA to Enova Enerji Uretim A.S. /30/.
The project did not participate in any other GHG emission reduction program. RINA confirm that there is no double counting involved in the proposed project activity during the validation process.

3.1.4 Eligibility of the project activity under VCS

The project comes under Type I – Renewable Energy project as per the procedures for CDM project activities /42/. The project is 61.7 MW run-off-river hydro electric power plants (HEPP), Oskan (23.889 MW) and Berkman (37.815 MW) diversion weirs and it uses renewable sources to produce electricity. According to the Decision 17/CP.7 Article 6 /42/, the project activity is considered as a large scale project as the total installed capacity of the project exceeds 15 MW. Since the project consists of two diversion weirs and HEPPs, namely Oşkan and Berkman, it is a grouped one. Based on the above justification, the proposed project activity is eligible under VCS /26/.

3.2 Baseline

3.2.1 Approval of the baseline methodology

The UNFCCC official approved consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” version 12.1.0 of 26/11/2010 /3/ has been applied for determining the baseline of the proposed project

activity. For the calculation of the emission factor, UNFCCC methodological tool “Tool to calculate emission factor for an electricity system” version 02 of 16/10/2009 /4/ is used. For the assessment and demonstration of the additionality, UNFCCC methodological tool “Tool for demonstration and assessment of additionality”, version 05.2 of 26/8/2008 /23/ is used.
The methodological tools /4/ /23/ is referred in the applied methodology /3/ and both the tools and the methodology are the latest version available at the time of the latest version of the PDD /1/ submission to RINA. RINA considers and found appropriate. Clean Development Mechanism methodologies are approved under the VCS program /27/.

3.2.2 Correct application and justification of baseline methodology

The project correctly applies the UNFCCC approved consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 12.1.0 of 26/11/2010 /3/. The proposed project activity meets the criteria expected in the baseline methodology as it ensures that:

- it is an installation of a new grid-connected renewable power plant using hydro source at a site where no renewable power plant was operated prior to the implementation of the project activity, thus it is a Greenfield plant with a total installed capacity of 61.7 MW;
- the proposed project activity results in new reservoirs and the power density of the power plant is 18.86 W/m^2, which is greater than the threshold of 4 W/m^2 as per the ACM0002 version 12.1.0; the power density was calculated by dividing the total installed capacity of the hydro power plant of 61.7 MW by the full reservoir area of the project 3,269,986.74 m^2 /28/;
- it does not involve switching from fossil fuels to renewable energy source at the project site;
- the project is connected to the Turkish national grid, which the geographical and system boundaries are clearly identified and the information on the characteristic of this grid is available /17/.

RINA confirms that the baseline methodology was correctly applied and the justification for the choice of the baseline methodology is found appropriate.

3.2.3 Appropriate setting of baseline scenario

According the approved methodology /3/, the baseline scenario is “the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system” /4/ .
RINA confirms that the approved UNFCCC baseline methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” version 12.1.0 /3/ has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

3.2.4 Assessment and demonstration of additionality

The assessment and demonstration of the additionality of the project is done by using UNFCCC Methodological Tool “Methodological tool “Tool for the demonstration and assessment of additionality”, version 05.2 of 26/8/2008 /23/. The following steps are applied.

Step 1: Identify realistic and credible alternative baseline scenarios: three alternatives scenario to the project activity have been considered and discussed:

Alternative 1: the proposed project not undertaken as a VCS project activity;

Alternative 2: continuation of the current situation that means supply the equal amount of the electricity by the grid connected power plants;

Alternative 3: construction of a thermal power plant with the same installed capacity or the same annual power output.

All three alternatives are in compliance with the legal requirements /18/ /19/ /20/ /21/, as they are practices currently present in the country.

Step 2: Investment analysis: to demonstrate the additionality of the proposed project activity the investment analysis has been applied.
The proposed project activity generates financial benefits from the sales of electricity other than the revenue of VCUs, so the simple cost analysis (Option I) cannot be applied. Investment comparison analysis (Option II) is only applicable to projects where the alternatives should be similar investment projects and the project owner has no investment options to compare with.
A benchmark approach is considered appropriate, thus according to the methodological tool /23/, the Benchmark analysis (Option III) has been applied. The project owner has compared the project financials against the benchmark of 11.55% derived from government bond rate. The Turkish bond rate in US dollar has been selected as 6.96% at the time of the investment decision of November 2007 /22/. The country risk premium is taken from publicly statistic /36/ by the American University as 5.4% and Beta of 0.85 is applied /37/. The selected benchmark is suitable and appropriate to the proposed project activity.
The IRR calculations were provided in the IRR calculation spreadsheet dated March 2010 /6/. The calculations were verified and found to be correct by RINA as well as the assumptions used in the calculation were deemed to be correct**.** The main input parameters used in the financial analysis have been from third party sources, including the feasibility study reports /28/, the production license /30/, the purchase contract /34/ and the credit agreement /44/. The electricity sale price accounts to 0.055 €/kWh; based on the Law on utilization of renewable energy sources for the purpose of generating electrical energy, the price applicable to this type of electricity generation shall be the electricity average wholesale price in the host Country for the previous year as determined by EMRA. However, the applicable price may be not less than 0.05 €/kWh and may not exceed 0.055 €/kWh which is guaranteed by the State as an incentive to renewable energy investments /43/. As per the IRR

spreadsheet calculation /6/ the project IRR without VER revenues is 6.52% and with VER revenues is 7.91%, both are below the benchmark IRR of 11.55%. Based on that, the project activity is not financially attractive without the VER revenues. To confirm the robustness of the financial analysis, a sensitivity analysis has been carried out for the parameters contributing more than 20% revenues and costs. Reasonable variations of the investment cost, the operation and maintenance cost, the electricity tariff, the construction cost and the equipment costs were checked by calculating the variation necessary to reach the benchmark /6/ and then discussing the likelihood for that to happen. The considered range is for a decrease of - 2.5%, - 5% and – 10% and for an increase of 2.5%, 5% and 10%.

The results of IRR and sensitivity analysis /6/ show that without the income from the VCUs sale, the proposed project activity is unlikely to be financially attractive.

Step 3: Barrier analysis: to substantiate the investment analysis the project owner has also identified barriers that would prevent the implementation of the proposed project activity as the investment barriers and the technical barriers.

Based on the barrier analysis the project results more vulnerable to barriers and faces considerable investment and technical barriers that would affect the implementation of the project without the VER benefit.

Step 4: Common practice analysis: according to the methodological tool /23/, the common practice analysis is applied and has been carried comparing the HEPP energy production with the thermal power plants in Turkey.

Based on the publicly available information /17/, the installed capacity of the thermal power plants increased from 13,021.3 MW in 1998 to 27,595 MW in 2008 while the capacity of hydroelectric has only increased from 10,306.5 MW in 1998 to 13,828.7 MW in 2008. TEIAS, the State body, made two ten year's energy production capacity projections where the use of natural gas and fossil fuel power plants is expected to rise, almost doubling; whereas the hydroelectric power generation is not expected to have a great increase; and the increase of the other renewable energy sources, such as wind, geothermal and biomass are foreseen to be negligible. The electricity generation in Turkey during the year 2008 /17/ was shared for thermal power generation of 35% by state owned companies and 48% by private owned companies and for hydroelectric 15% by state owned companies and 2% by private owned company. Based on the above assumption, the proposed project activity is not a common practice in Turkey.

In conclusion, the proposed project activity is not likely alternative and that the emission reductions resulting from the project are additional.

3.3 Monitoring Plan

3.3.1 Approval of the monitoring methodology

The monitoring plan of the project activity was derived from the ACM0002 “The consolidated monitoring methodology for grid connected generation from renewable sources”, version 12.1.0 /3/ . The monitoring plan will give opportunity for real measurement of achieved emissions reductions. The data will be archived electronically and be kept at least for two years after the end of the last crediting period. All measurements will be conducted with calibrated measurement equipment under the responsibility of the State body TEIAS.

3.3.2 Correct application and justification of the selected monitoring methodology

The justification of the choice of the selected baseline and monitoring methodology is described in section 3.2.2. of this report.

3.3.3 Information about monitoring plan

The monitoring plan includes the monitoring of several parameters as described in the following table; the monitoring plan also includes the monitoring of sustainable indicators not required neither by the methodology /3/ and nor by the country requirements, and environmental indicators during the operation of the plant as required by the country environmental requirements /19/.

The monitoring parameters covered in the monitoring plan are described in the following table.

Parameter	Data Unit	Monitoring frequency QA/QC procedures
$EG_{facility, y}$ **Quantity of net electricity generated by the project activity and supplied to the grid**	**MWh**	**The net electricity produced by Berkman HEPP is transmitted to Oskan HEPP which is monitored by an electricity meter. The net electricity produced by Oskan HEPP is monitored through 3 electricity meters. Each meter is equipped with a back up meter, which the back up meters serves to detect calibration faults between two meters.** **The electricity sale receipts would be used for cross check with the measurement. Hourly measurement and monthly recording is applied.**
A_{PJ} **Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full**	**m^2**	**The area of the reservoir is measured yearly through topographical survey, maps and/or satellite pictures.**

The following parameters are also monitored: the number of temporary and permanent employee, the livelihood of the poor, and the environmental indicators as status of air quality, water quality, solid waste, biodiversity and noise pollution.
A monitoring system will be implemented in order to ensure that the real, measurable and long-term GHG emission reductions for the proposed project activity are monitored and reported. Monitoring staff will be trained to conduct the monitoring plan and to make the monitored data accurate. The plant manager will be responsible for the general aspect of the plant and VER monitoring plan, the electrical engineer will be responsible for the recording and monitoring of relevant data, the account manager

will be responsible for data keeping on electricity sales, Suen Ltd will be responsible for emission reduction calculations and monitoring reports.
RINA has checked the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant to the project activity have been found in the plan.
RINA confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified.

3.4 Calculation of GHG emissions

The emission reduction ER_y of the proposed project activity is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y) as follows:

- baseline emissions (BE_y): are the product of the baseline emission factor ($EF_{grid,CM,y}$ in tCO_2/MWh) times the electricity supplied by the proposed project activity to the grid (EG_y in MWh).
- project emissions (PE_y): there are no emissions from the project since the power density of the proposed project activity is 18.86 W/m^2, much greater than 10 W/m^2; at the validation stage the project emission due to the fossil fuel consumption for the operation of the backup power equipment is zero.
- leakage (L_y): no leakage has to be considered for the proposed project activity.

3.4.1 The appropriateness of the sources

The baseline emission factor is determined ex-ante according to the methodological tool “Tool to calculate emission factor for an electricity system” /4/ as the weighted average of OM and BM. The weight of OM and BM are selected for the first crediting period as 0.5 as requested for hydropower project in the methodological tool. The combined margin emission factor is determined ex-ante based on the most recent information available (2006-2008) /35/ at the time of the validation commencement. The combined grid emission factor of the Turkish National Grid is calculated as 0.615 tCO2e/MWh /5/.

3.4.2 The correctness and transparency of formulas and factors used.

The emission reductions were calculated by subtracting the project emission from the baseline emissions. The estimations can be replicated using the data and parameter values provided in the PDD version 3 /1/ and the emission reduction calculation spreadsheet version 2 of October 2010 /5/ submitted for validation. In summary, the GHG calculations are completed, transparent and their accuracy has been verified. No uncertainty was found in the calculations. The expected emission reductions on annual average were calculated to be 147,566 tCO_2e over the project’s ten years renewable crediting period.

3.5 Environmental Impacts

According to National laws and regulations in Turkey /19//21/, the proposed project activity is not required to submit the Environmental Impact Assessment to the government, which is also confirmed by cross-checking the the EIA exemption certificate for Oskan HEPP /32/ and Berkman HEPP /31/ issued by the Ministry of Environment and Forestry in August 2003. However, an EIA study of the project was prepared by a third party consultant on April 2009 /7/ for obtaining a loan. As per the EIA report, the environmental impacts are evaluated for both construction and operation phases, which concluded that no significant negative impact on the environment and no significant transboundary effects are expected from the project.

3.6 Comments by stakeholders

According to the regulation on environmental impact assessment /21/, the stakeholder meeting was organized as a part of the EIA / required for obtaining the loan, which was held on 10/09/2009 in Karagedik Village. It was announced through the national newspaper and through the Village Head of Karagedik, Karatepe and Nohuttepe. The objective of the public consultation was to enable the individual who are likely affected and the concerned institutions near the project activity area to express their views on the project and to be informed of the project's basic description and its social and environmental effects /39/. During the meeting, the purpose of the meeting, the presentation of the owners, the technology and operation of run-of-river hydroelectric power plant, the location of the plants and the social and environmental impacts has been explained to the attended participants by a representative of the project owner. The participants comprised the representatives from community (Head of Villages) and the local resident /38/. A summary of the comments received from the stakeholders are provided in the PDD /1/. During the interviews realized on May 2010 during the site visit, positive feedback from stakeholder was received.

4 VALIDATION CONCLUSION

RINA Services Spa (RINA) has performed validation of the project activity "Ceyhan 61.7 MW Hydropower Project" in Turkey, on the basis of the VCS criteria and country criteria.

The review of the project design document and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the fulfillment of the stated criteria.

The project correctly applies the UNFCCC approved baseline and monitoring methodologies "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.1.0 of 26/11/2010.

By generating electricity from renewable hydropower plan and displacing grid electricity that would otherwise be generated by fossil fuel power plants connected to the national grid, the project results in reduction of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project 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.

The total emission reductions from the "Ceyhan 61.7 MW Hydropower Project" are estimated to be on an average 147,566 tCO_{2e} per year over the selected 10 years renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is RINA's opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is RINA's opinion that the project activity "Ceyhan 61.7 MW Hydropower Project" in Turkey, as described in the PDD version 03 of 02/02/2011, meets all relevant VCS requirements and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.1.0 of 26/11/2010.

The validation is based on the information made available to us detailed in this report.

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APPENDIX A

VALIDATION PROTOCOL

TABLE 1 REQUIREMENTS CHECKLIST

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
A Description of Project Activity						
A.1 Title of the project activity						
A.1.1.	Title of the project activity, revision number and date of PDD (section A.1). State the clearly identifiable title of the project activity, the version number and the date of the PDD.	/1/	DR	Yes, the PDD in section A.1. has the title and the date of PDD: "Ceyan 61.7 MW hydropower project" of 10/9/2009. *No version of the PDD has been included in Section A.1*.	~~CAR1~~	OK
A.1.2	Does the project comply with the applicable requirements for completing the PDDs?	/1/	DR	Yes. The PP chose to use the CDM PDD form completing the PDD dated 10/9/2009/1/. It complies with the applicable CDM requirements for completing the PDD but some VCS PD requirements have not been included. *The PP is requested to provide the PDD in compliance with the VCS requirements for VCS PD, in particular the PDD dated 10/9/2009 does not contain the following:* - *it is not specified if the project is a Grouped project;* - *para 1.10 Compliance with relevant local laws and regulations related to the project;* - *para 1.11 Identification of risks that may substantially affect the project's GHG emission reduction of removal enhancements;* - *para 1.12 Demonstration to confirm that the project was not implemented*	~~CAR1~~	OK

[1] MoV: DR document review, I interview, CC cross checking

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				to creat GHG emissions primarily for the purpose of its subsequent removal or destruction - *para 1.13 Demonstration that the project has not created another from of environmental credit (i.e. renewable energy certificates)* - *para 1.14 Project rejected under other GHG programs;* - *eligibility of the project under VCS standard.* *Moreover the international standard of numbers has not been used.*		
A.2 Description of the proposed project activity						
A.2.1	Does the PDD contain an accurate description of the project activity and provide the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation? How was the design of the project assessed?	/1/	DR/I	The proposed project activity is a hydro run-of-river power plant. It consists in the construction and operation of two power plants having a total capacity of 61.7 MW: Oskan with 25 MW and Beskan 36.7 MW. The project activity results a large scale project. It is expected to be produced total electricity of 259,290 MW (86.57 MW by Oskan project and 119.68 by Berkman project) per year and will be delivered to Turkish National Grid. The proposed project activity is defined as Greenfield project since no existing plant there was before the implementation of the project activity. However during the on site inspection it has been verified that both the plants are already constructed and the starting of operation was expected on June 2010 for Oşkan plant and on July 2010 for Berkman plant. *The PDD does not contain the following information:* - *any description of the scenario*	~~CAR19~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				before the implementation of the proposed project activity - *the capacity of each turbine installed for both the projects* *The PP is requested to update the PDD accordingly and provide documented evidence on commissioning date and technical specification of the turbine installed*.		
A.2.2	Does the project activity involve alteration of existing installations? If yes, have the differences between pre-project and post-project activity been clearly described in the PDD?	/1/	DR/I	No, the project activity is a Greenfield project and doesn't involve the alteration of the existing installation. *Please refer to section A.2.1*.	~~CAR19~~	OK
A.3 Project participants						
A.3.1	Have the Parties and project participants participating in the project been listed in tabular form in Section A.3 and are they consistent with the information detailed in Annex 1 of the PDD?	/1/	DR/I	The project proponents listed in Annex I of the PDD dated 10/9/2009 are: Suen Ltd and Enova Enerji Production Co. Enova Enerji Uretim A.S. is mentioned in Section A.3. as the project owner. *The project participants participating in the project listed in Section A.3. are not consistent with the information detailed in Annex 1 of the PDD dated 10/9/2009.* *As per the VCS requirement the PP is requested to provide documented evidence of proof of title as ownership of the plant .*	~~CL1~~	OK
A.3.2	Do all participating Parties fulfil the participation requirements as follows: (a) Party has ratified the Kyoto Protocol (b) Party has a Designated National Authority (c) The assigned amount has been determined	/1/	DR	The project applies under a voluntary standard as VCS. Not applicable.		OK
A.3.3	Have the letters of approval have been issued?	/1/	DR	The project applies under a voluntary standard as VCS.		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				Not applicable		
A.3.4	Do the letters of approval meet the following requirements? (a) LoA confirms that the Party has ratified the Kyoto Protocol; (b) LoA confirms that participation is voluntary (c) The LoA confirms that the project contributes to the sustainable development of the Host Country? (d) The LoA refers to the precise project activity title in the PDD (e) The LoA was received directly by the DNA of the PP In case of doubt regarding the authenticity of the LoAs, describe how it was verified that the letter of approval is authentic.	/1/	DR	The project applies under a voluntary standard as VCS. Not applicable		OK
A.3.5	Have all private/public project participants been authorized by a Party to the Kyoto Protocol?	/1/	DR	The project applies under a voluntary standard as VCS. Not applicable		OK
A.4 Technical description of the project						
A.4.1	Is the project location clearly defined?	/1/	DR/I	The proposed project is located in South Anatolian Region in the city of Osmaniye on Ceyan Riever The project geographical coordinates are: Oskan plant 37.224463 North and 36.252444 East; Berkman plant 37.168667 North and 36.233742 East. *The PDD does not mention the distance between the two projects. The PP is requested to update the PDD accordingly and to provide documented evidence confirming the geographical coordinates. Moreover is also requested to provide documented evidences about the distance between the two plants*.	~~CL2~~	OK
A.4.2	Does the project design engineering reflect current	/1/	DR/I	The proposed project activity will be	~~CAR2~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	good practices? Would the technology result in a significantly better performance than any commonly used technologies in the host Country? Is any transfer of technology from any Annex I Party involved?			developed in two phases: during the 1st phase is expected to construct Oskan power plant installing three Pit Kaplan turbine generators unit with 25 MW total installed capacity; during the 2nd phase is expected to construct Berkman power plant installing three Pit Kaplan turbine generators unit with 36.7 MW total installed capacity. The plant load factor is estimated to be 50% for both the plants. *The energy production of each plant is not consistent through the PDD. The PP is requested to provide explanation on why different production is expected during the first three years and which is the effective production. Moreover is requested to provide the gross and the net electricity production including the coefficient of effective electricity and the self consumption.* *The PP is requested to demonstrate how the coefficient of effective electricity has been calculated and provide documented evidences supporting the assumption and the calculation.* *There is no evidence that the plant load factor has been determined ex-ante in accordance with the "Guidelines for the reporting and validation of plant load factors" (EB48 Annex 11).* *The lifetime of the project equipments is not included in the PDD and the PP is also requested to provide documented evidence supporting the project equipments lifetime.* *In the PPD there is no evidence if the know-how and technology is transferred from the Annex I Country*.	~~CAR3~~ ~~CAR4~~ ~~CL3~~	

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
A.4.3	If public funding from Parties included in Annex I is used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties?	/1/	DR	The project does not involved any public funding from an Annex I Party, and the validation did not reveal any information that indicated that the project can be see a ODA funding towards Turkey.		OK
B. Application of a baseline and monitoring methodology						
B.1 Methodology applied						
B.1.1	Does the project activity apply an approved methodology and the correct version thereof?	/1/ /3/	DR	Yes. The proposed project activity applies the approved baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid connected electricity generation from renewable source" version 10. *Since the methodology will be valid till 25 October 2010, the PP is suggested to apply the latest version available*.	~~CL4~~	OK
B.2 Applicability criteria of the methodology/tools						
B.2.1	How was it validated that the project activity complies with the applicability criteria?	/1/ /3/	DR/I	The proposed project activity meets criteria expected in the approved baseline methodology AMC0002 version 10 under the following conditions: i) the proposed project is an installation of new grid-connected renewable power plant utilizing hydro source.. ii) the proposed project activity does not involves energy source from fossil fuels to renewable energy source at the site of the project. The geographic and system boundaries for the relevant grid electricity are clearly identified as the Turkish national grid. *In the PDD section B.2 there is no*	~~CAR5~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				evidence that on the applicability criteria related to the reservoirs. The PP is requested to provide evidence demonstrating that the project meets those criteria. Moreover the PP is requested to provide evidence that the information on the characteristics of the grid is publicly available.		
B.2.2	Is the selected baseline one of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/1/ /3/	DR/I	Being the proposed project activity the installation of a new grid-connected renewable power plant, according to the approved methodology ACM0002, the baseline scenario is the electricity delivered to the grid by the project activity that would otherwise been generated by the operation of grid-connected power plants and by the additions of new generation sources.		OK
B.3 Project boundary						
B.3.1	Is the project boundary are clearly defined and in accordance with the applied methodology?	/1/ /3/	DR/1	*The project boundary described in the PDD is not in accordance with the methodology requirements. Moreover a flow diagram representing all the equipments, systems, emissions sources and gas included in the project boundary and the monitoring variables is requested*.	~~CAR6~~	OK
B.3.2	What are the project's system boundaries (components and facilities used to mitigate GHGs)?	/1/ /3/	DR/1	*Please refer to section B.3.1*.	~~CAR6~~	OK
B.3.3	Which sources are identified for the project? Does the identified project boundary cover all possible sources linked to the project activity?	/1/ /3/	DR/I	Baseline emissions: CO2 emissions for electricity system. Project emissions: No CH4 emissions from the reservoir are considered since the power density of the reservoir is greater than 10W/m2. *The PP is requested to provide documented evidence on how the power*	~~CL5~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				density has been calculated (input values and sources) for both the plants.		
B.3.4	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute by more than 1% to the estimated emission reductions of the project?	/1/ /3/	DR/I	*The PDD does not include any information about the other emissions sources not foreseen by the methodology that can contribute by more than 1% to the estimated emission reductions of the project*.	~~CAR7~~	OK
B.4 Baseline scenario identification						
B.4.1	Which baseline scenarios have been identified? Is the list of the baseline scenarios complete?	/1/ /3/	DR/I	Three alternatives scenario to the project activity have been considered for the baseline scenario. *According to the approved methodology ACM0002 version 10, since the project is not the retrofit or replacement of the existing grid-connected renewable power plant, the PP is requested justification on why apply the step 1 to identify the realistic and credible alternative baseline scenarios.*	~~CAR8~~	OK
B.4.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/1/ /3/	DR/I	*Please refer to Section B.4.2*	~~CAR8~~	OK
B.4.3	What is the baseline scenario? Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/1/ /3/	DR/I	*Please refer to Section B.4.2*	~~CAR8~~	OK
B.4.4	Has the baseline scenario been determined using conservative assumptions? Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /3/	DR/I	*Please refer to Section B.4.2.*	~~CAR8~~	OK
B.5 Additionality determination						
B.5.1	What tool does the project use to assess additionality? Is this in line with the methodology?	/1/ /3/	DR/I	The project additionality has been demonstrated applying the Tool for demonstration and assessment of additionality version 05.2.		OK
B.5.2	What is the project additionality mainly based on?	/1/ /3/	DR/I	To demonstrate the project additionality the project participants applied the investment		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
		/6/		analysis.		
B.5.3	Prior consideration of CDM					
B.5.3.1	What is the starting date of the proposed project activity?	/1/	DR/I	In the PDD it is stated that the starting date of the proposed project activity is on 1/4/2010 but it is not specified for which plant. *The PP is requested to provide evidences that the established starting date of the project is in compliance with the Glossary terms of CDM.*	~~CAR9~~	OK
B.5.3.2	What is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/1/	DR/I	*Please refer to section B.5.3.1.* *Based on the compliance of the starting date the PP is requested to provide documented evidences for serious consideration of CDM prior to the time of decision to proceed with the project activity according to EB49 Annex 22.*	~~CAR9~~ ~~CAR10~~	OK
B.5.3.3	What initiatives were taken by the project participants from the starting date of the project activity to the start of validation in parallel with the physical implementation of the project activity?	/1/	DR/I	*Based on the compliance of the starting date the PP is requested to provide documented evidences for initiative taken from the starting date to the start of validation in parallel with the physical implementation of the project activity according to EB49 Annex 22.*	~~CAR10~~	OK
B.5.3.4	Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status?	/1/	DR/I	*Please refer to section B.5.3.3.*	~~CAR10~~	OK
B.5.4	Investment analysis					
B.5.4.1	What is the analysis method used to determine whether the proposed project activity is not (a) the most economically or financially attractive; or (b) economically or financially feasible, without the revenue from the sale of certified emission	/1/ /3/ /6/	DR	To demonstrate the project additionality the project participants applied the investment analysis and option III “benchmark analysis” of the methodological tool has been applied since the project activity generates		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	reductions?			economic benefits other than the VERs income.		
B.5.4.2	What the financial indicator is used?	/1/ /3/ /6/	DR	The IRR has been identifying as relevant indicator for benchmark analysis. The Eurobond rate is the selected IRR benchmark. *The PP is requested to provide evidence that the benchmark selected is suitable for the proposed project activity, and available at the date of the investment decision made based on the compliance of the starting date of the proposed project activity,* *The PP is also requested if the benchmark refers to project IRR or equity IRR and defined the IRR used to compare the financial results.* *The financial analysis provided by the PP does not specify to which plant it refers moreover the PP is requested to provide separate financial analysis for each plant.*	~~CAR11~~ ~~CAR12~~	OK
B.5.4.3	Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the Host Country?	/1/ /3/ /6/	DR	Yes the income tax of 20% calculation takes into account the depreciation. The depreciation year is 20 year. *The PP is requested to provide documented evidence to support the choice of the 20 depreciation years and confirming that is in accordance with normal accounting practice in the Host Country. Moreover the PP is requested justification on why the income tax has been calculated for the 4th year and why the depreciation has been calculated for the 4th year.*	~~CL6~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
B.5.4.4	Is the time period of the investment analysis and operating time of the project realistic? Has salvage value been taken into account? Is the working capital returned in the last year of the operation?	/1/ /3/ /6/	DR	As per the PDD the operational lifetime is 49 years and the time period of the investment analysis is 20 years. *The PP is requested to provide evidences supporting the 49 operational lifetime of the project.* *It is not clear from the financial analysis if the salvage value is taken into account and if the working capital returned in the last year of the operation.*	~~CL7~~	OK
B.5.4.5	Cross-check of main parameters used in the financial analysis: electricity generation, electricity tariff, investment costs, operating and maintenance costs, taxes, other costs. The main parameters can be changed for the different project category.	/1/ /3/ /6/	DR	*The PP is requested justification on why the first FSR was done in 2003 and a revised FSR was done on 2008.* *It is not clear from the PDD from which sources have been taken the input parameters used in the financial analysis and if they are valid and applicable at the time of the investment decision.*	~~CAR13~~	OK
B.5.4.6	Sensitivity analysis: have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified?	/1/ /3/ /6/	DR	Three parameters have been considered contributing to more than 20% revenues and costs: investment cost, operation cost and electricity sales revenues. *The PP is requested why it has not been included the electricity production since it contributes to more than 20%.* *No justification has provided on variations necessary to reach the benchmark and likelihood for that to happen.*	~~CAR14~~	OK
B.5.4.7	Sensitivity analysis: is the range of variations is reasonable in the project activity? The main parameters can be changed for the different project category.	/1/ /3/ /6/	DR	*Please refer to Section B.5.4.6*	~~CAR14~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
B.5.4.8	Have the key parameters been varied to reach the benchmark and the likelihood of this happening been justified to be small?	/1/ /3/ /6/	DR	*Please refer to Section B.5.4.6*	~~CAR14~~	OK
B.5.5 Barrier analysis						
B.5.5.1	Are the barriers identified complimentary to a potential investment analysis?	/1/ /3/	DR	The PP also applied the barrier analysis. *The PP is requested to demonstrate the barrier analysis is in compliance with the EB guideline EB50 Annex 13 otherwise based on para 116 (a) of the VVM if the barrier is not real or is not supported by sufficient evidence, it shall be removed from the project documentation*.	~~CAR15~~	OK
B.5.5.2	How were the investment barriers assessed to be real? How does CDM alleviate the investment barriers?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.3	Is the project activity prevented by the investment barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.4	How were the technological barriers assessed to be real? How does CDM alleviate the technological barriers?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.5	Is the project activity prevented by the technological barriers and is at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.6	How were the barriers due to prevailing practise assessed to be real? How does CDM alleviate the barriers due to prevailing practice?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.7	Is the project activity prevented by the barriers due to prevailing practice and is at least one of the possible alternatives to the project activity is feasible under the	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	same circumstances?					
B.5.5.8	How were the other barriers assessed to be real? How does CDM alleviate the other barriers?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.5.9	Is the project activity prevented by the other barriers and is at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/ /3/	DR	*Please refer to Section B.5.5.1*.	~~CAR15~~	OK
B.5.6 Common practice analysis						
B.5.6.1	What are the geographical scope and scope of technology of the common practice analysis?	/1/ /3/	DR/I	*The PP is requested to define the geographical scope and the scope of technology used for the common practice analysis.* *The PP is requested to discuss how many similar projects are in operation in the selected area and why they are not similar to the proposed project activity. All the assumptions have to be supported by objective evidences*.	~~CAR16~~	OK
B.5.6.2	How many similar non-CDM-projects exist in the region within the scope?	/1/ /3/	DR/I	*Please refer to section B.5.6.2*.	~~CAR16~~	OK
B.5.6.3	How were possible essential distinctions between the project activity and similar activities assessed?	/1/ /3/	DR/I	*Please refer to section B.5.6.2*.	~~CAR16~~	OK
B.5.6.4	What is the data source(s) used for the common practice analysis?	/1/ /3/	DR/I	*Please refer to section B.5.6.2*.	~~CAR16~~	OK
B.5.7 Conclusion on the additionality assessment						
B.5.7.1	What is the conclusion with regard to the additionality of the project activity?	/1/ /3/ /6/	DR/I	*Pending from the resolution of the previous CAR/CL*.	~~CAR9 – 16~~ ~~CL6 - 7~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
B.6 Calculation of GHG emission reductions						
B.6.1 Baseline emissions						
B.6.1.1	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /3/ /4/ /5/	DR/I	The "Tool to calculate the emission factor for an electricity system" has been used to determine the grid emission factor of the Turkish national grid. *The PDD does not refer to any version of the tool and there is no evidence that the tool version 2 valid from October 2009 has been used.* *The data used are till 2008 but the project start validation on February 2010; the PP is requested to demonstrate that the EF calculation is based on the most recent data available at the time of the validation starting date.* *The excel sheet with EF calculation shall be in line with the requirements of the methodological tool and presented in English language only*.	~~CAR17~~	OK
B.6.1.2	Have conservative assumptions been used when calculating the baseline emissions and are the uncertainty estimates properly addressed?	/1/ /3/ /4/ /5/	DR/I	*Please refer to Section B.6.1.1*.	~~CAR17~~	OK
B.6.2 Project emissions						
B.6.2.1	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /3/ /5/	DR/I	Since the power density of the proposed project activity is 18.65 W/m^2, according to the approved methodology ACM0002 project emissions is zero. *The does not specify if the power density mentioned is totally for both the plants. The PP is requested to specify and provide documented evidences*.	~~CL5~~	OK
B.6.2.2	Have conservative assumptions been used when calculating the project emissions and are the	/1/ /3/	DR/I	*Please refer to Section B.6.2.1*.	~~CL5~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	uncertainty estimates properly addressed?	/5/				
B.6.3 Leakage						
B.6.3.1	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /3/ /5/	DR/I	Applying the approved methodology ACM0002 potential leakage due to activities such as power plant construction, fuel handling and land inundation do not need to be considered.		OK
B.6.3.2	Have conservative assumptions been used when calculating the leakage and are the uncertainty estimates properly addressed?	/1/ /3/ /5/	DR/I	Please refer to Section B.6.3.1		OK
B.6.4 Emission reductions						
B.6.4.1	Has the methodology been correctly applied to calculate the emission reductions and can this be replicated by the data provided in the PDD and supporting files to be submitted for registration?	/1/ /3/ /4/ /5/	DR/I	*Pending from the previous CARs and CLs.*	~~CAR17~~ ~~CL5~~	OK
B.6.5 Data and parameters that are available at validation and that are not monitored						
B.6.5.1	How were the parameters available at validation verified?	/1/ /3/ /4/ /5/	DR/I	*Please refer to Section B.6.1.1*.	~~CAR17~~	OK
B.7 Monitoring plan						
B.7.1 Data and parameters monitored						
B.7.1.1	Does the monitoring plan described in the PDD comply with the requirements of the methodology?	/1/ /3/ /4/	DR/I	Yes, the monitoring plan described in the PDD comply with the requirements of the methodology applied.		OK
B.7.1.2	Does the monitoring plan contain all necessary parameters and are they clearly described?	/1/ /3/ /4/	DR/I	Yes. The parameters that will be monitored are the net electricity supplied to the grid and the surface area of full reservoir level. *The PDD does not specify clearly if the net electricity supplied to the grid will be monitored separately for each plant; moreover there is any diagram showing the location of the monitoring equipments*.	~~CL8~~	OK
B.7.1.3	Is the measurement equipment described? Is the accuracy of the measurement equipment addressed	/1/ /3/	DR/I	The net electricity supplied will be measured by meters, the calibration will be		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	and deemed appropriate? Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	/4/		carried out according to relevant national standards and regulations and the accuracy of the meter will be in compliance with the national guidelines and requirements.		
B.7.1.4	Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/1/ /3/ /4/	DR/I	The net electricity supplied to the grid is measured in continuous and monthly aggregated. *The monitoring frequency of the surface area is not in line with the applied methodology.*	~~CL9~~	OK
B.7.1.5	Is the recording frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/1/ /3/ /4/	DR/I	Yes the recording frequency is in line the monitoring methodology.		OK
B.7.2 Monitoring of sustainable development indicators/environmental impacts						
B.7.2.1	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/ /3/ /7/	DR/I	The host country legislation does not require monitoring specific sustainable development indicators and or environmental impacts. However following the stakeholder consultation the PP decide monitoring two sustainable indicators: the number of temporary and permanent employees due to the implementation of the project and livelihood of the poor related to the employee pay rolls. Moreover based on the EIA regulation the environmental impacts during the construction and operationale phase will be monitored on annual base.		OK
B.7.2.2	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/ /3/ /7/	DR/I	*No. The PP is requested to update the monitoring plan providing method used for collection and archiving of relevant data concerning environmental, social and economic impacts.*	~~CL10~~	OK
B.7.2.3	Are the sustainable development indicators in line with stated national priorities in the host country?	/1/ /3/	DR/I	The host country legislation does not require monitoring specific sustainable		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
		/7/		development indicators and or environmental impacts		
B.7.3 Management, quality assurance and quality control						
B.7.3.1	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	I	During the on site inspection it has been verified that the monitoring arrangements described in the monitoring plan are feasible within the project design.		OK
B.7.3.2	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/	DR	*No procedures are available to ensure the monitoring plan including the data management and quality assurance and quality control.*	~~CAR18~~	OK
B.7.3.3	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/	DR	*Please refer to section B.7.3.2*	~~CAR18~~	OK
B.7.3.4	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	*Please refer to section B.7.3.2*	~~CAR18~~	OK
C. Duration of the project activity and crediting period.						
C.1 Start date of project activity						
C.1.1	What is the expected starting date of the project activity and how has been determined? When was the first construction activity?	/1/	DR/I	In the PDD it is stated that the starting date of the proposed project activity is on 1/4/2010 but it is not specified for which plant. *The PP is requested to provide evidences that the established starting date of the project is in compliance with the Glossary terms of CDM.*	~~CAR9~~	OK
C.1.2	What is the expected operational lifetime of the project activity? Is it reasonable?	/1/	DR/I	As per the PDD the operational lifetime is 49 years. *The PP is requested to provide evidences supporting the 49 operational lifetime of the project.*	~~CL7~~	OK
C.2 Start date of crediting period						
C.2.1	What is the expected starting date of the proposed project activity? Does the crediting period start eight week after the request for registration?	/1/	DR/I	As per the PDD the starting date of the crediting period is 1/4/2010.		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
C.2.2	What is the length of the crediting period? Is it clearly defined and reasonable?	/1/	DR/I	The length of the crediting period is 10 years		OK
D.	**Environmental Impact**					
D.1.1	Has an analysis of the environment impacts of the project activity been undertaken? Is it clearly and sufficiently described in the PDD?	/1/ /7/	DR/I	Yes, an analysis of the environments impacts of the project activity have been undertaken and it is sufficiently described in the PDD.		OK
D.1.3	Is the analysis of the environmental impacts required by the legislation of the host Country? If yes, has the EIA has been approved by local Government? Does the approval contain any conditions that need monitoring?	/1/ /7/	DR/I	The host contry legislation identify different categories that fall under the EIA. In the specific case the proposed project activity is not included in the Annex II of the Turkish EIA regulation and so the report is not required. Anyway the PP obtaining the loan for the plant was obliged to prepare an EIA to be submitted to the bank.		OK
D.1.4	Is it the project in line with the current environmental legislation in the host Country?	/1/ /7/	DR/I	Yes.		OK
E.	**Local stakeholder consultation**					
E.1.1	Are the local stakeholders be invited by the PP prior to the publication of the PDD to the UNFCCC website?	/1/	DR/I	The local stakeholder consultation meeting was held on 10 April 2009 and so prior to the starting date of the validation process. The meeting was held in accordance to the World Bank Operational Manual Requirements.		OK
E.1.2	Area the stakeholders invited be considered as regards commenting the proposed project activity?	/1/	DR/I	The meeting was announced in local media and national newspaper. *The PP is requested to provide the documented evidence related to the meeting announcement.*	~~CL11~~	OK
E.1.3	Is the summary of the comments received from the stakeholders, provided in the PDD complete?	/1/	DR/I	*The PP is requested to provide the meeting minute.*	~~CL11~~	OK
E.1.4	Has due account been taken by the project participants of any stakeholder comments received?	/1/	DR/I	*Please refer to Section E.1.3*	~~CL11~~	OK
E.1.5	If a stakeholder consultation process is required by regulations/laws in the host Country, has the stakeholder consultation process been carried out in	/1/	DR/I	No the stakeholder consultation process is not required by regulations and/or laws in the host country.		OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	accordance with such regulations/laws?					

TABLE 2 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
CAR 1 No version of the PDD has been included in Section A.1 The PP is requested to provide the PDD in compliance with the VCS requirements for VCS PD, in particular the PDD dated 10/9/2009 does not contain the following: - it is not specified if the project is a Grouped project; - para 1.10 Compliance with relevant local laws and regulations related to the project; - para 1.11 Identification of risks that may substantially affect the project's GHG emission reduction of removal enhancements; - para 1.12 Demonstration to confirm that the project was not implemented to creat GHG emissions primarily for the purpose of its subsequent removal or destruction - para 1.13 Demonstration that the project has not created another from of environmental credit (i.e. renewable energy certificates) - para 1.14 Project rejected under other GHG programs; - eligibility of the project under VCS standard. Moreover the international standard of numbers has not been used	A.1.1 A.1.2	- Version number has been added. (version 2) - It has been declared that the project is a grouped one and consists of two diversion weirs and HEPPs, Oşkan and Berkman. - para 1.10: relevant laws and regulations have been mentioned at section B.5 of the PDD. - para 1.11 : these risks have been mentioned at A.2 of PDD. - para 1.12: this has been explained at section A.2 of PDD. - para 1.13: this has been explained at section A.2 of PDD. - para 1.14: this has been explained at section A.2 of PDD. - Eligibility of the project has been determined according to UNFCCC definition and this has been explained at section A.2 of PDD. International standard of numbers has been applied.	The revised PDD version 3 of 02/02/2011 has been submitted for validation. The PDD is updated accordingly. CAR 1 is closed.
CAR2 The energy production of each plant is not consistent through the PDD. The PP is requested to provide explanation on why different production is expected during the first three years and which	A.4.2	Electricity generation of both plants has been corrected according the latest projections. As there are lots of variations affecting water flow regime on a river, expected flow regime might differ yearly.	The energy production projection for the period 2010-2030 based on the historical flow data of the river and future flows of upstream dams /12/. The revised PDD version 3 of 02/02/2011 /1/ has been

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
is the effective production. Moreover is requested to provide the gross and the net electricity production including the coefficient of effective electricity and the self consumption. The PP is requested to demonstrate how the coefficient of effective electricity has been calculated and provide documented evidences supporting the assumption and the calculation.		All electricity figures have been updated accordingly and a consistency among numbers have been maintained. Gross and net electricity productions have been provided. The Latest energy production table with gross and net electricity generation with coefficient of effective electricity shall be sent to the DOE as attachment #1. Self consumption figures have been demonstrated.	submitted for validation and it is updated accordingly. CAR2 is closed.
CAR3 There is no evidence that the plant load factor has been determined ex-ante in accordance with the "Guidelines for the reporting and validation of plant load factors" (EB48 Annex 11).	A.4.2	Plant load factors of both Oşkan and Berkman has been calculated as per EB48 Annex 11 II-b (The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company); This calculation shall be sent to DOE with this document as attachment #2.	The plant load factor calculation /13/ prepared by a third party (Temelsu International Engineering Services Inc) has been submitted for validation. CAR 3 is closed.
CAR4 The lifetime of the project equipments is not included in the PDD and the PP is also requested to provide documented evidence supporting the project equipments lifetime	A.4.2	Lifetime of project equipments has been included at the PDD. Also documented evidence of project lifetime shall be sent to DOE as attachment #3.	The turbine/generator supplier declaration /14/ has been submitted for validation. The project lifetime of the equipment is expected to be 20 years. CAR 4 is closer.
CAR5 In the PDD section B.2 there is no evidence that on the applicability criteria related to the reservoirs. The PP is requested to provide evidence demonstrating that the project meets those criteria. Moreover the PP is requested to provide evidence that the information on the characteristics of the grid is publicly available.	B.2.1	- The calculated power density of the submerged areas is 18.65 W/m^2 which is more than 4 W/m^2. Submerged area and the diagram were submitted to DOE during site visit. Also this criteria has been added to section B.2 of PDD. - The information on the characteristics of the grid is publicly available. A diagram of Turkish national grid has been put in the	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and it is updated accordingly. The applicability criteria of the selected methodology are discussed accordingly as well the delineation of the Turkish national grid /17/. CAR 5 is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		PDD and justified with a reference at B3.	
CAR6 The project boundary described in the PDD is not in accordance with the methodology requirements. Moreover a flow diagram representing all the equipments, systems, emissions sources and gas included in the project boundary and the monitoring variables is requested.	B.3.1 B.3.2	Project boundary description has been amended according to the methodology. A flow diagram has been added.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The project boundary of the project is defined in accordance to the requirements of the UNFCCC approved methodology ACM0002 /3/ version 12.1.0. CAR6 is closed.
CAR7 The PDD does not include any information about the other emissions sources not foreseen by the methodology that can contribute by more than 1% to the estimated emission reductions of the project.	B.3.4	This CAR has been explained and corrected at B3 of PDD. Technical data on diesel generators shall be sent as attachment #4.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. There are two diesel generators at each plant; based on the manufacturer's specification /15/ and the period will be in function declared by the project participant, the project emissions will be less than 1%. CAR7 is closed.
CAR 8 According to the approved methodology ACM0002 version 9, since the project is not the retrofit or replacement of the existing grid-connected renewable power plant, the PP is requested justification on why apply the step 1 to identify the realistic and credible alternative baseline scenarios.	B.4.1 B.4.2 B.4.3 B.4.4	"Tool for the demonstration and assessment of additionality" (Version05.2) Requires following steps to be taken: Step 1: Identification of alternatives to the project activity consistent with mandatory laws and regulations Step 2: Investment analysis STEP 3. Barrier analysis STEP 4. Common practice analysis Therefore these steps have been applied.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The identification of the alternative is carried out based on the requirement of the Tool for demonstration and assessment of the additionality version 05.2 /23/. The baseline scenario is determined according the approved methodology ACM002 version 12.01.0 /3/. CAR8 is closed.
CAR9 The PP is requested to provide evidences that the	B.5.3.1	Starting date of the project is 22	Based on the purchase equipment

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
established starting date of the project is in compliance with the Glossary terms of CDM.	B.5.3.2 C.1.1	November 2007, on which the electromechanical purchase agreement was signed with the manufacturer. And this information has been added to section C.1.1 of PDD.	contract /34/ the starting date of the project is on 22/11/2007. However as the per VCS requirements the expected starting date of the project activity is 6/6/2010 when the Oskan HEPP started electricity generation /40/. The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CAR 9 is closed.
CAR10 Based on the compliance of the starting date the PP is requested to provide documented evidences for serious consideration of CDM prior to the time of decision to proceed with the project activity according to EB49 Annex 22. Based on the compliance of the starting date the PP is requested to provide documented evidences for initiative taken from the starting date to the start of validation in parallel with the physical implementation of the project activity according to EB49 Annex 22.	B.5.3.2 B.5.3.3	Starting date of the project is 22 November 2007. Prior consideration of CDM was documented by a board meeting of Enova Energy dated 05 January 2007. This board decision minute will be submitted to the DOE with this document as attachment #5.	The project owner has been awarded the project after receiving the production license by EMRA on December 2006 for a period of 49 years /30/ and on January 2007 during the Board Meeting /16/. On January 2008 the construction started, on May 2009 the EIA was submitted for obtaining a loan /7/ and on June 2010 and August 2010 started the operation respectively of Oskan HEPP /40/ and Berkman HEPP /41/. The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CAR 10 is closed.
CAR11 The PP is requested to provide evidence that the benchmark selected is suitable for the proposed project activity, and available at the date of the investment decision made based on the compliance of the starting date of the proposed project activity. The PP is also requested if the benchmark refers to project IRR or equity IRR and defined the IRR	B.5.4.2	A reliable risk Premium related to hydro projects could not be identified because of limited data on this sector. Therefore as a benchmark IRR, government bonds in US dollar that have been increased by a suitable risk premium were used as a benchmark IRR.	The project owner has compared the project financials against the benchmark of 11.55% derived from government bond rate. The Turkish bond rate in US dollar has been selected as 6.96% at the time of the investment decision of November 2007 /22/. The country risk premium is taken from publicly statistic /36/ by the American University as 5.4% and Beta of

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
used to compare the financial results.			0.85 is applied /37/. The selected benchmark is suitable and appropriate to the proposed project activity. The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CAR11 is closed.
CAR12 The financial analysis provided by the PP does not specify to which plant it refers moreover the PP is requested to provide separate financial analysis for each plant.	B.5.4.2	Financial analysis has not been made for each plant as both plants belong to same entity. There has not been separate crediting or budget for each project. Moreover generated electricity by both plants shall be billed together and only one receipt shall be received. Therefore two projects have not been separated financially.	The IRR calculations were provided in a spreadsheet /6/. The calculation were verified and found to be correct by RINA as well as the assumptions used in the calculation were deemed to be correct. The main input parameters used in the financial analysis have been from third party sources as feasibility study reports /28/, purchase contract /34/. The electricity sale price account to 0,055 €/kWh which is the minimum purchase guarantee of offered by the State as an incentive to renewable energy investments /43/. CAR12 is closed.
CAR13 The PP is requested justification on why the first FSR was done in 2003 and a revised FSR was done on 2008. It is not clear from the PDD from which sources have been taken the input parameters used in the financial analysis and if they are valid and applicable at the time of the investment decision.	B.5.4.5	The feasibility report was revised in March 2008 because; the installed power of Berkman diversion weir was updated as a result of water level of Cevdetiye Diversion weir2 Output generation of Berkman diversion weir was re-calculated taking into consideration that 3m3/s of water will be taken for Afşin Elbistan C and D thermal power plants3	. A first feasibility study report was issued on June 2003 /8/ based on what the construction of the project started on January 2008 but in March 2008 the feasibility study report /28/ was update because the water level of Cevdetiye diversion weir required updating the installed power of Berkman diversion weir, the output generation was re-calculated taking into consideration that 3

[2] Revised Feasibility report
[3] Revised Feasibility report

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		River regulation was commenced at 56.50 m level and was connected to Cevdetiye diversion weir at 53.80 m level.4 Plant cost was re-evaluated considering 2007 prices.5 The sources of the input parameters have been explained.	m3/s of water is taken for thermal power plants located in the same area (Afsin Elbistan C and D). The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CAR13 is closed.
CAR14 The PP is requested why it has not been included the electricity production since it contributes to more than 20%. No justification has provided on variations necessary to reach the benchmark and likelihood for that to happen.	B.5.4.6 B.5.4.7 B.5.4.8	Electricity production revenues have been evaluated in sensitivity analysis section. Justifications on variations necessary to reach the benchmark have been provided.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The sensitivity analysis has been also carried out for the electricity tariff applying reasonable variation necessary to reach the benchmark. CAR14 is closed.
CAR15 The PP is requested to demonstrate the barrier analysis is in compliance with the EB guideline EB50 Annex 13 otherwise based on para 116 (a) of the VVM if the barrier is not real or is not supported by sufficient evidence, it shall be removed from the project documentation.	B.5.5.1 B.5.5.2 B.5.5.3 B.5.5.4 B.5.5.5 B.5.5.6 B.5.5.7 B.5.5.8 B.5.5.9	Barrier analysis has been discussed in compliance with EB50 Annex 13.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. To substantiate the investment analysis the project owner has also identified barriers that would prevent the implementation of the proposed project activity as the investment barriers and the technical barriers. Based on the barrier analysis the project results more vulnerable to barriers and faces considerable investment and technical barriers that would affect the implementation of the project without the VER benefit. CAR15 is closed.

[4] Revised Feasibility report
[5] Revised Feasibility report

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
CAR16 The PP is requested to define the geographical scope and the scope of technology used for the common practice analysis. The PP is requested to discuss how many similar projects are in operation in the selected area and why they are not similar to the proposed project activity. All the assumptions have to be supported by objective evidences.	B.5.6.1 B.5.6.2 B.5.6.3 B.5.6.4	Common practice analysis has been discussed. Moreover similar activities on the area have been discussed in detail.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. According to the methodological tool /23/ the common practice analysis is applied and has been carried comparing the HEPP energy production with the thermal power plants in Turkey. Based on the publicly available information /17/ the installed capacity of the thermal power plants increased from 13,021.3 MW in 1998 to 27,595 MW in 2008 while the capacity of hydroelectric has only increased from 10,306.5 MW in 1998 to 13,828.7 MW in 2008. TEIAS, the State body, made two ten year's energy production capacity projections and the use of natural gas and fossil fuel power plants is expected to rise, almost doubling while the hydroelectric power generation is not expected a great increase and the increase for the other renewable energy sources as wind, geothermal and biomass is negligible. The electricity generation in Turkey during the year 2008 /17/ was shared for thermal power generation of 35% by state owned companies and 48% by private owned companies and for hydroelectric 15% by state owned companies and 2% by private owned company. Based on the above assumption the proposed project activity is not a common practice in Turkey. CAR16 is closed.
CAR17 The PDD does not refer to any version of the tool and there is no evidence that the tool version 2	B.6.1.1 B.6.1.2	-Version number of the tool has been added. -At the time of the validation start date	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
valid from October 2009 has been used. The data used are till 2008 but the project start validation on February 2010; the PP is requested to demonstrate that the EF calculation is based on the most recent data available at the time of the validation starting date. The excel sheet with EF calculation shall be in line with the requirements of the methodological tool and presented in English language only.	B.6.5.1	(February 2010) the most updated data available was that of 2008 at the website of TEIAS and still there is no update as of September 2010. EF calculations excel sheet will be sent to the DOE as attachment #6.	The baseline emission factor is determined ex ante according to the methodological tool "Tool to calculate emission factor for an electricity system" /4/ as the weighted average of OM and BM. The weight of OM and BM are selected for the first crediting period as 0.5 as requested for hydropower project by the methodological tool. The combined margin emission factor is determined ex-ante based on the most recent information available (2006-2008) /35/. The combined grid emission factor of the Turkish National Grid is calculated as 0.615 tCO2e/MWh /5/. CAR17 is closed.
CAR18 No procedures are available to ensure the monitoring plan including the data management and quality assurance and quality control.	B.7.3.2 B.7.3.3 B.7.3.4	Monitoring plan, data management QA and QQ matters have been discussed. A diagram has been added demonstrating persons responsible for monitoring.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. GHG emission reductions for the proposed project activity are monitored and reported. Monitoring staff will be trained to conduct the monitoring plan and to make the monitored data accurate. The plant manager will be responsible for the general aspect of the plant and VER monitoring plan, the electrical engineer will be responsible for the recording and monitoring of relevant data, the account manager will be responsible for data keeping on electricity sales, Suen Ltd will be responsible for emission reduction calculations and monitoring reports. CAR18 is closed.
CAR19	A.2.1	The scenario before the implementation	The revised PDD version 3 of 02/02/2011

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
The PDD does not contain the following information: - any description of the scenario before the implementation of the proposed project activity - the capacity of each turbine installed for both the projects The PP is requested to update the PDD accordingly and provide documented evidence on commissioning date and technical specification of the turbine installed.	A.2.2	of the project has been discussed. Capacity of each turbine installed for both projects has been discussed. Documented evidence on commissioning date (provisional acceptance) shall be sent as attachment #7 and technical specification of the turbines installed shall be sent to the DOE as attachment #8.	/1/ has been submitted for validation and updated accordingly. CAR19 is closed.
CL1 The project participants participating in the project listed in Section A.3. are not consistent with the information detailed in Annex 1 of the PDD dated 10/9/2009. As per the VCS requirement the PP is requested to provide documented evidence of proof of title as ownership of the plant.	A.3.1	-This inconsistency has been corrected. -Proof of title (production license by EMRA proves the ownership of the plant by ENOVA energy) shall be submitted to DOE as attachment #9. * Physical address, telephone and fax numbers of Suen Ltd. changed. Therefore Annex 1 has been updated with the new contact info of Suen Ltd.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The ownership of the project is evidenced by the energy production license issued by EMRA to Enova Enerji Uretim A.S. /30/. CL1 is closed.
CL2 The PDD does not mention the distance between the two projects. The PP is requested to update the PDD accordingly and to provide documented evidence confirming the geographical coordinates. Moreover is also requested to provide documented evidences about the distance between the two plants.	A.4.1	This information has been added to A.4.1 of the PDD. Moreover coordinates have been added to A.4.1.4 and a Google map, showing the locations of the plants has been put. Distance between two plants has been supported by a Google map.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CL2 is closed.
CL3 In the PPD there is no evidence if the know-how and technology is transferred from the Annex I Country.	A.4.2	This information has been added to the relevant section.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The technology used in the power plants is a state of the art technology provided by Annex I Country (France) /34/.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			CL3 is closed.
CL4 Since the methodology will be valid till 25 October 2010, the PP is suggested to apply the latest version available.	B.1.1	Latest methodology has been applied. "ACM0002: Consolidated methodology for grid-connected electricity generation from renewable sources - Version 12.1.0"	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The UNFCCC official approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 12.1.0 of 26/11/2010 /3/ has been applied for determining the baseline of the proposed project activity. CL4 is closed.
CL5 The PP is requested to provide documented evidence on how the power density has been calculated (input values and sources) for both the plants. The does not specify if the power density mentioned is totally for both the plants.	B.3.3 B.6.2.1 B.6.2.2	Requested corrections and explanations have been done. It has been clarified that the calculated power density is for both plants.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The power density of the power plant is 18.86 W/m^2, greater than 4 W/m^2; the power density is determined as per the ACM0002 formula where the installed capacity of the hydro power plant after the implementation of the proposed project activity is 61.7 MW and the surface area of full reservoir area of the project 3,269,986.74 m^2 /28/. CL5 is closed.
CL6 The PP is requested to provide documented evidence to support the choice of the 20 depreciation years and confirming that is in accordance with normal accounting practice in the Host Country. Moreover the PP is requested justification on why the income tax has been calculated for the 4th year and why the	B.5.4.3	-Income tax and depreciation have been calculated as of the 4^{th} year because the plants start operation and making revenues and therefore paying taxes four years after start date. -The lifetime of project equipments is stated to be 20 years by the manufacturer, Alstom. Therefore	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CL6 is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
depreciation has been calculated for the 4th year.		Depreciation was calculated 20 years in financial studies. However for such equipment the legislation requires 40 years of depreciation. Thus, all calculations have been updated according to the relevant legislation of 40 years depreciation.	
CL7 The PP is requested to provide evidences supporting the 49 operational lifetime of the project. It is not clear from the financial analysis if the salvage value is taken into account and if the working capital returned in the last year of the operation.	B.5.4.4 C.1.2	-The license issued by Electricity Market Regulatory Authority (EMRA) for the projects is for 49 years. Therefore the lifetime of the project is limited for 49 years. -License will be sent to the DOE as attachment #9. -Salvage value has not been taken into account in financial analysis because the plant is licensed for 49 years by EMRA (Energy Market Regulatory Authority) therefore the project owners will have to leave the plant as it is after 49 years and transfer the plant to the state. Thus salvage value has no concern or significance of the project owners as the plant will be owned by the state after 49 years. The license shall be sent to DOE as attachment #9.	The expected lifetime of the project starting on December 2006 /30/ is 49 years according the duration of the license obtained from EMRA /30/. However the equipment lifetime as per the supplier declaration is only 20 years /14/, thus the equipments may be renewed (as recommended) during the lifetime of the project activity according to the conditions of the equipment. CL7 is closed.
CL8 The PDD does not specify clearly if the net electricity supplied to the grid will be monitored separately for each plant; moreover there is any diagram showing the location of the monitoring equipments.	B.7.1.2	Necessary explanation has been added. The net electricity supplied to the grid will be monitored only at Oşkan HEPP where there is the metering devices installed and sealed by TEIAS. The generated electricity at Berkman HEPP will be transferred to Oşkan HEPP and they will connected to the grid together. Thus both plants will not be metered separately by TEIAS. More detailed information has been added to PDD. A single line diagram	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The net electricity produced by Berkman HEPP is transmitted to Oskan HEPP and it is monitored by an electricity meter; the net electricity produced by Oskan HEPP is monitored trough 3 electricity meters. Back up meters are expected. Cross check measurement results with record for sold electricity. Hourly measurement

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		showing location of monitoring equipments shall be sent to DOE as attachment #10 and shall be inserted in the PDD. For emission reduction calculations results of the meters installed and sealed by TEIAS will be referenced.	and monthly recording is applied. CL8 is closed.
CL9 The monitoring frequency of the surface area is not in line with the applied methodology.	B.7.1.4	Corrected according to the methodology.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. The area of the reservoir is measured yearly through topographical survey, maps and/or satellite pictures. CL9 is closed.
CL10 The PP is requested to update the monitoring plan providing method used for collection and archiving of relevant data concerning environmental, social and economic impacts.	B.7.2.2	Required changes have been submitted.	The revised PDD version 3 of 02/02/2011 /1/ has been submitted for validation and updated accordingly. CL10 is closed.
CL11 The PP is requested to provide the documented evidence related to the meeting announcement The PP is requested to provide the meeting minute.	E.1.2 E.1.3 E.1.4	-Public Consultation Report shall be sent to the DOE as attachment #11 and relevant information can be found in this document.	The objective of the public consultation was to enable the individual near the project activity area who are likely affected and the concerned institutions to express their views on the project and to be informed of the project's basic description and its social and environmental effects /39/. The public consultation report /39/ was submitted for validation. CL11 closed.

TABLE 4 FORWARD ACTION REQUEST

Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
FAR 1		