VALIDATION REPORT

Final

"Chorokhi Hydro Power Plant Project"
in
Georgia

Report N°2011-DG-186-MD

Revision N°2.0

VALIDATION REPORT

Project Title:	Country:	Estimated CERs (tCO2e):
Chorokhi Hydro Power Plant Project	Georgia	284,042 annual average
Client:	**Client contact:**	
Achar Energy 2007 Ltd Co.	Ahmet Atak	
Report No.:	**Revision:**	**Date of this report:**
2011-DG-186-MD	2.0	10/10/2013
Approved by (Final Report – Authorized officer signing for the DOE):		**Date of approval:**
Laura Severino		11/10/2013

Methodology

Number:	Version:	Title:	Scale	SS(s):
ACM0002	13.0.0 of 11/05/2012	Consolidated baseline methodology for grid-connected electricity generation from renewable sources	Large	1

RINA Services S.p.A. (RINA), commissioned by Achar Energy 2007 Ltd Co., has performed the validation of the project activity "Chorokhi Hydro Power Plant Project" in Georgia, with regard to the relevant requirements for CDM activities.

In conclusion, it is RINA's opinion that the project activity "Chorokhi Hydro Power Plant Project", in "Georgia", as described in the PDD version 06 of 16/09/2013, meets all relevant requirements for CDM 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 13.0.0 of 11/05/2012. Hence RINA requests the registration of the project as a CDM project activity.

Work carried out by:

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Work verified by (Final Report):

Laura Severino

Keywords:

Climate Change, Kyoto Protocol, Clean Development Mechanism, Validation

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Abbreviations

BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction(s)
CH_4	Methane
CL	Clarification Request
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
EB	Executive Board
EIA	Environmental Impact assessment
ER	Emission Reductions
ESIA	Environmental and Social Impact Assessment
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
HPP	Hydro Power Plant
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MOC	Modalities of Communication Statement
MoU	Memorandum of understanding
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PE	Project Emission
PLF	Plant Load Factor
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa

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SS(s)	Sectoral Scope(s)
SSC	Small Scale
UNFCCC	United Nations Framework Convention on Climate Change
WEG	World Experience of Georgia

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1 INTRODUCTION

Achar Energy 2007 Ltd Co. has commissioned RINA to carry out the validation of the "Chorokhi Hydro Power Plant Project" project in Georgia.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, 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 CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the project design document. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC 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 CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is to review the PDD against the UNFCCC criteria for CDM.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

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.

2 METHODOLOGY

Validation was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, 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 06 of 16/09/2013 and previous versions /01/ 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, "CM-Calculation-Chorokhi-HPP_v2.1_2012-08-09.xls", version 2.1 of 09/08/2012 and previous version /03/, the investment analysis IRR Calculation Spreadsheet "IRR_Chorokhi_v3_2012-10-25.xls" version 03 of 25/10/2012 and previous versions /08/, were assessed as part of the validation.

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

/01/	FutureCamp Iklim ve Enerji Ltd. Sti: CDM-PDD for project activity "Chorokhi Hydro Power Plant Project" in Georgia, version 06 of 16/09/2013 and previous version 01 of 24/01/2012,

	version 02 of 09/08/2012, version 03 of 25/10/2012, version 05 of 17/12/2012
/02/	Minister of Environment protection of Georgia: Letter of Endorsement of 25/11/2011
/03/	FutureCamp Iklim ve Enerji Ltd. Sti: ER and EF Calculation Spreadsheet "CM-Calculation-Chorokhi-HPP_v2.1_2012-08-09.xls " version 2.1 of 09/08/2012 and previous "CM-Calculation-Chorokhi-HPP_2012-01-24" version 01 of 24/01/2012.
/04/	CDM Executive Board: Validation and Verification Manual, version 01.2 of 30/07/2010
/05/	CDM Executive Board: Baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.2 of 25/11/2011, version 12.3 of 02/03/2012, version 13.0.0 of 11/05/2012
/06/	CDM Executive Board: Guideline for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM), version 07 of 02/08/2008
/07/	UNFCCC Parties & Observers States Georgia Website: http://maindb.unfccc.int/public/country.pl?country=GE (Language: English, last retrieved: 21/03/2012)
/08/	FutureCamp Iklim ve Enerji Ltd. Sti: IRR Calculation Spreadsheet "IRR_Chorokhi_v3_2012-10-25.xls" version 03 of 25/10/2012 and previous "IRR_Chorokhi_v2_2012-08-09.xls " version 02 of 09/08/2012, "IRR_Chorokhi_2012-01-24" version 01 of 24/01/2012.
/09/	Gamma Consulting Ltd.: Environmental and Social Impact Assessment (ESIA) Report of 2011.
/10/	CDM Executive Board: Methodological Tool "Tool for the Demonstration and assessment of Additionality", version 06.0.0 of 25/11/2011 (EB65 Annex 21), version 06.1.0 of 13/09/2012 and version 7.0.0. of 23/11/2012.
/11/	CDM Executive Board: Methodological Tool "Tool to calculate the emission factor for an electricity system", version 02.2.1 of 29/09/2011 and version 3.0.0 of 23/11/2012.
/12/	CDM Executive Board: Glossary of CDM Terms, version 05 of 19/08/2009, version 07.0 of 23/11/2012.
/13/	CDM Executive Board: "Guidelines on the demonstration and assessment of prior consideration of the CDM", version 04 of 15/07/2011 (EB 62 Annex 13).
/14/	CDM Executive Board: Guidelines on the assessment of investment analysis, version 05 of 15/07/2011 (EB 62 Annex 5).
/15/	Ministry of Environment Protection and Natural Resources of Georgia: Baseline Emission Factor for the Electricity System of Georgia, dated 2008 Website: http://moe.gov.ge/files/Klimatis%20Cvlileba/Grid_Emission_Factor_Georgia.pdf (Language: English)
/16/	Intergovernmental Panel on Climate Change (IPCC): 2006 IPCC Guideline for National Greenhouse Gas (GHG) Inventory, Volume 2: Energy, dated April 2006.
/17/	CDM Executive Board: Guidelines for the Reporting and Validation of Plant Load Factors (PLF) version 01, of 17/07/2009 (EB 48 Annex 11).
/18/	Ministry of Energy and Natural Resources of Georgia: Statistics: Electricity Balance 2011. Website: http://www.menr.gov.ge/en/Statistic (Language: English, last retrieved : 23/03/2012)
/19/	Energy Invest: Technical Characteristics. Description of Gardabani 110 MW Gas Turbine Power Station http://www.energyinvest.ge/main.php?who=gas&action=12&lang=eng (Language: English, Last retrieved: 23/03/2012)
/20/	World Experience of Georgia (WEG): http://weg.ge/index.php?option=com_content&task=view&id=64 (Language: English, Last retrieved: 23/03/2012)
/21/	Prior Consideration of the CDM Form (F-CDM Prior consideration) of 09/01/2012 and notified

	by the UNFCCC on 11/12/2012.
/22/	Ministry of Environment Protection of Georgia: ESIA Report Approval for Chorokhi HPPs Project, of 05/01/2012
/23/	Ficthner GmbH & Co – Feasibility Study Report (FSR) Downstream Chorokhi HPPs in Georgia, of October 2011 (version 05 of 12/10/2011).
/24/	Achar Energy 2007 Ltd Co. and Georgia Government: Agreement for utilization of the energy potential of Chorokhi River in the borders of Georgia, of 08/06/2009
/25/	Autonomous Republic of Adjara Financial and Economic Department: Construction permit for Khelvachauri I HPP, permit n. 05 issued on 06/02/2012.
/26/	Autonomous Republic of Adjara Financial and Economic Department: Construction permit for Kirnati I HPP, permit n. 04 issued on 06/02/2012.
/27/	Memorandum of Understanding between The Government of Georgia, Achar Energy 2007 Ltd Co. and the Electricity System Commercial Operator Ltd, of 01/07/2011
/28/	Memorandum of Understanding between The Government of Georgia, Achar Energy 2007 Ltd Co., of 28/02/2008 (document amended by the MoU signed on 08/06/2009).
/29/	Achar Energy 2007 Ltd Co.: Letter to Ministry of Energy and Natural Resources of Georgia for submission and amendment of the FSR, of 27/11/2011.
/30/	UNFCCC Website – Prior consideration of the CDM http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html (English language – retrieved on 27/03/2012)
/31/	Ficthner GmbH & Co – Measurement of the reservoir are before the implementation of the project activity, 09/2011.
/32/	Email notification to DNA of Georgia sent by FutureCamp on 12/01/2012
/33/	Achar Energy 2007 Ltd Co.: Request of Letter of Endorsement to DNA of Georgia, of 31/10/2011
/34/	Zhejiang Fuchuanjiang Hydropower Equipment Co. Ltd: Supply of turbine and generator unit for Khelvachauri I (Karnati is also included) – Contract Document, of 16/03/2012.
/35/	Montana State University & Yellowstone National Park – Tool for cross-checking and convert geographical coordinates website: http://www.rcn.montana.edu/resources/tools/coordinates.aspx (English language retrieved on 27/03/2012)
/36/	Achar Energy 2007 Ltd Co. : Letter to Ministry of Environment Protection and Natural Resources of Georgia, informing about their intention to construct a HPP considering the CDM, of 31/10/2011.
/37/	PWC Georgia: Georgia Pocket Tax Book 2011, of February 2011
/38/	Zhejiang Fuchuanjiang Hydropower Equipment Co. Ltd: Maintenance, service and availability agreement for Khelvachauri I and Karnati HPPSs, of 16/03/2012.
/39/	National Investment Agency Invest in Georgia website (Tax System) http://www.investingeorgia.org/?84/tax_system/ (English language retrieved on 27/03/2012)
/40/	CDM Executive Board: Clean Development Mechanism Project Design Document Form (CDM-PDD) version 03 in effect as of 28/07/2006.
/41/	Turkish Government Electricity Market Licensing Regulation – General Provisions, published in the Official Gazette dated 04/08/2002 n. 24836
/42/	Minister of Environment Protection of Georgia: Letter of Approval for Chorokhi Hydro Power Plant Project, of 01/05/2012.
/43/	Government of Georgia: Georgian law on electricity and natural gas, of 27/06/1997.
/44/	Georgian National Energy and Water Regulatory Commission: Resolution 23 of 18/09/2008 approving Rules of Activity Control in Electricity, Natural Gas and Water Sector and Licensing

	Rules.
/45/	Ministry of Environment Protection of Georgia Clean Development Mechanism Designated National Authority: Baseline Emission Factor for the Electricity System of Georgia Version 1.1, of 24/07/2012. Website: http://moe.gov.ge/files/PDF%20%20qartuli/Updated_Baseline_EF_2004-2006_24_July_2012.pdf English language – accessed on 25/09/2012.
/46/	CDM Executive Board: Implementation plan for the clean development mechanism project standard, validation and verification standard and project cycle procedure, version 02.0 of 20/07/2012.
/47/	International Energy Agency: Renewable Energy Essentials Hydropower – Website http://www.iea.org/publications/freepublications/publication/Hydropower_Essentials.pdf English language – accessed on 20/11/2012
/48/	The Government of Georgia: The signed date of the MoU (10/06/2011) – Wesbsite http://www.menr.gov.ge/common/get_doc.aspx?doc_id=7472 English language – accessed on 20/11/2012
/49/	Transmission Loss factor – 2008/2010 average of Turkish grid transmission losses. Website: http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim(22-45)/33(84-10).xls English language – accessed on 20/11/2012
/50/	Equity share used on financing conditions of similar projects in Turkey – Website: http://www.alarko.com.tr/eng/haber.asp?ID=1383 English language – accessed on 20/11/2012
/51/	Business loan interest rate – Website: http://www.economywatch.com/business/business-loan-interest-rate.html English language – accessed on 20/11/2012
/52/	System usage costs: Energy Market Regulatory Authority (Turkey): Decision No. 2913 of 09/12/2010 Turkey Electricity Transmission Company: Tariffs calculation system user and system operation method statement, of 01/01/2011 Turkey Electricity Transmission Company: Connection fees calculation method statement, of 01/01/2011
/53/	Agence Francaise de Dévelopment: Engaging Turkish Banks in scaling-up investment on climate change, of August 2008.
/54/	CDM Executive Board: Guidelines on Common Practice, version 02.0 of 13/09/2012
/55/	The Ministry of Energy Georgia: The electricity sector in Georgia – Risk assessment (common practice analysis)
/56/	CDM Executive Board: Clean Development Mechanism project cycle procedure, version 04.0 of 29/07/2013
/57/	CDM Executive Board: Clean Development Mechanism project standard, version 04.0 of 29/07/2013.
/58/	CDM Executive Board: Clean Development Mechanism Validation and Verification Standard, version 04.0 of 29/07/2013
/59/	CDM Executive Board: Project Design Document Form for CDM Project Activities (F-CDM-PDD) version 04.1 of 11/04/2012
/60/	CDM Executive Board: Guidelines for completing the Project Design Document Form, version 01.0 of 02/03/2012

/61/	CDM Executive Board: Modalities of Communication Statement, version 02.1 of 16/03/2012
/62/	Modalities of Communication Statement signed by the authorized signatory on 18/06/2013
/63/	Statement of signature of Ismail Kuris approved by notary on 03/08/2012
/64/	Achar Energy - Procuration document approved and signed by notary for company managers, of 14/06/2013
/65/	Achar Energy – Decision to construct the optional third Regulator Khelvachauri II, of 26/12/2012.
/66/	RINA Services Spa – Economic offer SI/2011/GHG/160 rev. 1 of 04/11/2011, signed by PP on 18/11/2011
/67/	Website: Net Transfer Capacity Announcement of TEIAS for Interconnection Lines http://www.teias.gov.tr/Dosyalar/NetTransferKapasiteleri.doc

2.2 Follow-up actions

On 28/03/2012 and 29/03/2012, RINA visited Khelvachauri town, Kirnati village in Batumi Province 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/	28/03/2012 29/03/2012	Ramazan Aslan Consultant	FutureCamp	Implementation of the project, methodology applicability, baseline scenario, additionality, CDM prior consideration, ERs calculation, monitoring plan, crediting period.
/b/		Fariz Tasdan Consultant		
/c/	28/03/2012	Juguli Akhvlediani ESIA Consultant	Gamma Consulting	Environmental Impact Assessment.
/d/		Zurab Merabishvili ESIA Consultant		
/e/		Giorgi Nakashidze Plant Operator	Achar Energy 2007 Ltd Co.	Environmental Impact Assessment, implementation of the project activity
/f/		Yılmaz Hocaoğlu Accountant		
/g/		Sofia Varshalomidze Assistant of Project Manager		
/h/		Leon Tecloraclze Stakeholder	Municipality Khelvachauri	Stakeholder consultation process.
/i/		Vaja Tavdozoridze Stakeholder		
/j/		Badri Istindzagze Stakeholder		

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 four 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 - Mandatory requirement		
Requirement	**Reference**	**Conclusion**
The requirements the project must meet.	Makes reference to the documents where the answer to the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) if a requirement is not met. A request for clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol, Table 2 - Requirement checklist					
Checklist Question	Ref.	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 3 - Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
The CAR and/or CLs raised in table 2 are repeated here.	Reference to the checklist question number in Table 2 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 4 - Forward Action Requests		
Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
The FAR raised in table 2 is repeated here.	Reference to the checklist question number in Table 2 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/Qualification	Last Name	First Name	Country
Team Leader CDM CDM Validator	Valoroso	Rita	Italy
CDM Validator in Training-Technical Expert	Tong	Wing Yu	Italy
CDM Validator in Training-Technical Expert	Timuroglu	Isil	Turkey
Financial Expert	Van der Tak	Casper	Italy
Technical Reviewer	Menon	Rekha	India

3 VALIDATION FINDINGS

The findings of the validation related to the project, as described in the PDD version 06 of 16/09/2013 and previous versions /01/, 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 Approval and Participation

The project participant is Achar Energy 2007 Ltd.Co. and is a private entity; the project is a unilateral project and hence the host country is the only Party involved in the proposed project activity. Georgia fulfils the requirements to participate in the CDM, having ratified the Kyoto Protocol on 16/06/1999 and establishing as DNA the Ministry of Environment Protection as per the UNFCCC website /07/. The project participant is correctly listed in table A.4 of the PDD and the information is consistent with the contact details provided in Appendix 1 of the PDD /01/.

The DNA of Georgia issued the LoA on 01/05/2012 /42/ approving the project activity and authorizing Achar Enegy 2007 Ltd Co. as project participant. The LoA clearly states that Georgia is party of the Kyoto Protocol, that the participation is voluntary, and that the project will contribute to sustainable development. The LoA was received directly from the PP and refer to the precise project activity in the PDD /01/ and has been issued by the DNA of Georgia, thus RINA has no reason to doubt of its authenticity.

By checking the above documents /42/ RINA considers both the LoAs in accordance with paragraphs 39-42 of the CDM-VVS /58/.

The proposed project does not involve any public funding from an Annex I Party, and the validation did not reveal any information that indicated that the project could be seen as a diversion of official development assistance (ODA) funding towards the host country. This is has been confirmed by the PP during the on-site visit: the project will be financed through 70% debt and 30% equity but at the time of the validation process the PP has not yet applied for any request to Banks.

Project participants	Achar Energy 2007 Ltd. Co.
Parties involved	Georgia
APPROVAL	
LoA received	Yes /42/
Date of LoA	01/05/2012
LoA received from	The LoA was received directly from the PP.
Validation of authenticity	Verifying the original LoA document /42/
Validity of LoA	Yes
PARTICIPATION	
Party is party to Kyoto Protocol	Yes
Voluntary participation	Yes
Project contribution to SD	Yes

3.2 Modalities of communication

The MoC dated 18/06/2013 /62/ was provided by Achar Energy 2007 Ltd with whom RINA has a contractual relationship confirmed by the request of services signed on 18/11/2011 /66/. The corporate identity of all PPs and focal points included in the MoC statement, as well the personal identities, the signatures and the related authorized signatures, and the employment status have been cross-checked through statement of signature of Mr. Ismail Kuris, approved by notary on 03/08/2012, /63/ and by the procuration document from the company to company managers including Mr. Ismail Kuris. The document is approved and singed by notary on 14/06/2013 /64/.

RINA confirms that the MoC statement provided by the PP(s) /62/ is based on the currently valid form "Modalities of Communication Statement" (F-CDM-MOC) /61/, the information required by the form including its Annex 1 is correctly completed, and the PP(s) authorized signatories signing the MoC correspond to the PP(s) authorized signatories included in Annex 1.

In conclusion, RINA confirms that the MoC statement provided by the PP(s) is in accordance with the requirements in para 53-55 as well it is in accordance with the requirements in para 60 of the CDM-VVS /58/.

3.3 Project design document

The PDD for the project activity "Chorokhi Hydro Power Plant Project", in "Georgia", version 06 of 16/09/2013 an previous versions submitted by the Achar Energy 2007 Ltd. Co have been the basis for the validation process.

The main changes between the PDD version 01 of 24/01/2012 published for GSC and the PDD version 06 of 16/09/2013 submitted for registration are the following:

Section of the PDD	Description and reason for changing the information in that section
A.4.3	Clarified that the technology of the project activity will be transferred from non-Annex I Country.
B.1	Version of the ACM0002 methodology is updated from 12.02.0 to 13.0.0. Discussion of the applicable tools is added.
B.2	Justification for project activity emission sources is updated.
B.5	Consistency of the project activity with host country laws and rules is

	explained. Justification on why the simple cost analysis and the comparison analysis is not applied, is added. Table 8 – Brief project financial characteristics, is updated accordingly with the sources considered for the investment analysis. The investment period is changed from 33 to 20 years, therefore the equity IRR is changed from 9.92% to 9.87%. Sensitivity analysis is updated providing justification on the variations of each parameter to reach the benchmark and the likelihood for that to happen. The common practice analysis is updated based on the additionality tool requirements version 07.0.0. The first-of-its-kind argumentation is removed.
B.6.2	Data and parameters that are available at validation is updated including the source from where the data for the grid emission factor have been taken. The combined emission factor is added.
B.7.1	Accuracy of the electricity meter is added. Justification about the use of the back-up diesel generator is added.
C.1.2	The expected operational lifetime of the project activity is updated from 33 to 50 years.
Following the incompleteness check received by the Secretariat on 09/05/2013, the PDD has been updated according the latest available template and guidelines in accordance with the VVS.	

RINA confirms that the above PDD is based on the currently valid PDD template /59/ and is completed in accordance with the applicable Guidelines for completing the Project Design Document Form /60/.

3.4 Project Design

Purpose and general description of the project activity

The purpose of the project activity is to construct a Greenfield hydro power plant (HPP) by utilizing the water resources at Chorokhi River in Georgia. The project consists of 3 weirs and 3 power units, namely, Khelvachauri I HPP (42.808MW), Khelvachauri II HPP (35.028MW) and Kirnati HPP (35.039MW), in a cascade system. The total installed capacity is 112,875MW /23/. It is expected that the project activity will generate 517.88 GWh of electricity per year and delivered to the Georgian National grid through the Batumi Substation of Georgian National Energy and Water Supply. The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey through the Georgian grid. As confirmed by the PP there is no guarantee price for selling the remaining 60% of the electricity produced. For the electricity which is planned to be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. According the electricity market licensing regulation issued by the Turkish Government the electricity can be only exported to Turkey via wholesale or retail companies having license from the Energy Market Regulatory Authority and electricity purchase agreement between this company and the project owner depends on bilateral negotiations /41/. In any case the electricity produces will be fed into Georgian grid as the power plant will be connected to the Batumi substation.

Project location

The proposed project activity is located on Chorokhi River, in Khelvachauri town and Kirnati village in Batumi Province, Georgia. The geographical coordinates of the 3 weirs and power houses are summarized as follows. The geographical coordinates have been cross-checked through the available tool on the website of the Montana University /35/ and found to be consistent.

Unit	PDD /01/		FSR /23/	
	Latitude N	Longitude E	Latitude N	Longitude E
Kirnati	41°30'57"	41°42'55"	4599605.89N	726588.01E
Khelvachauri I	41°33'2"	41°41'51"	4603398.00N	72496 6.20E
Khelvachauri II	41°34'6"	41°40'23"	4605313.98N	7228 68.72E

Scenario existing prior to the implementation of the project activity

The proposed project activity is a Greenfield project and prior to the start of its implementation, there is no power generation unit at the site of the proposed project, and the electricity was supplied by the Georgian National grid.

Technology(ies) employed

The project activity involves the implementation of 3 weirs and 3 power units, namely, Khelvachauri I HPP, Khelvachauri II HPP, and Kirnati HPP, in a cascade system, resulting in a total capacity of 112,875 MW. The electricity generated from the project activity will be exported to the Georgian National Grid through a 154 kV substation near Kirnati HPP; all the 3 HPPs are connected directly to the HV substation in Kirnati HPP as confirmed by the FSR /23/.

The technical specification of the project activity is summarized as follows, and details have been cross-checked with the FSR /23/ and found to be in line.

Unit	No. of turbines	kW of each turbine	No. of generators	kVa of each generator
Kirnati HPP	4	8,396	4	9,878
	1	1,455	1	1,712
Khelvachauri I	5	8,209	5	9,658
	1	1,763	1	2,074
Khelvachauri II	5	6,717	5	7,902
	1	1,443	1	1,697

The technology used for the proposed project activity is not transferred from Annex I Country; a purchase contract with a Chinese supplier for turbines and generators is signed on 16/03/2012 /34/.

Project implementation

The starting date of the project activity is 16/03/2012 when the turbine and generator unit for Khelvachauri I purchase agreement was signed /34/. It has been verified by RINA that the starting date represents as it is the earliest date on which the project participant has committed to expenditures related to the implementation of related to the construction of the project activity as per the Glossary of CDM terms /12/. From the on-site visit, the implementation of project is just started with the civil works after obtaining the construction permits. The construction permits have been issued by the Ministry of Economic of Adjara Autonomous Republic of Georgia on 06/02/2012 for Kirnati and Khelvachauri I/26/. According to the Memorandum of Understanding (MoU) signed on 01/07/2011 between the PP and the Government of Georgia /27/, the PP shall reserve the right to make decision within 12 months from the signature of the MoU whether to construct Khelvachauri II due to adverse effects which the construction may have on the agricultural land of Batumi including to submerge, demolition or loss of ground. According to the construction permits, the construction of the power plants shall be completed by 2016 /26/. On 26/12/2012 the PP informed the Minister of Energy and Natural Resources of

Georgia the company decision to construct the optional third Regulator Khelvachauri II /65/ as determined by the MoU dated 01/07/2011 /27/.

Crediting period and estimated Emission Reductions

The project results in reduction of GHG emissions displacing grid electricity that would otherwise be generated by fossil fuel power plants connected to the national grid; the total GHG emission reductions for the proposed project activity are forecasted to be 284,042 tCO_{2e} per year. A renewable crediting period of 7 years has been chosen for the project, starting from 31/12/2014, or the date of registration, whichever occurs later.

The expected operational lifetime of the project activity is 50 years which is the typical operation period for hydropower plant as confirmed by Renewable Energy Essentials Hydropower publication /47/.

Contribution to sustainable development

The proposed project activity is to replace grid-connected fossil fuel-fired power plants, thus can avoiding CO_2 emissions and pollutants emission that would cause by the fossil fuel-fired power plants. The project is expected to provide social and economic contribution to the region in a sustainable way, increasing job opportunities during the construction and operation phase, it will assist to reduce Georgia's increasing energy deficit and diversify the electricity generation mix while reducing import dependency. The LoA issued by the DNA of Georgia /42/ clearly project will contribute to sustainable development.

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 CDM project activity, as contained in the PDD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity.

3.5 Application of selected baseline and monitoring methodology

The project activity correctly applies the baseline and monitoring methodology ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 13.0.0 of 11/05/2012 /05/.

The proposed project activity meets the following conditions under which ACM0002 is applicable:

- the proposed project activity is a new grid-connected renewable HPP at a site where no renewable power plant was operated prior to the implementation of the project. Through the physical on-site visit it is confirmed that the proposed project activity is a new-grid connected renewable HPP at a site where no renewable plant was operated before the implementation of the project.
- the project activity results in creation of 3 new reservoirs with the power density of 64.92 W/m^2, 47.26 W/m^2 and 32.27 W/m^2, respectively, which exceeds the thresholds of 4W/m^2 as indicated in the methodology. The power density is calculated according the applied ACM0002 methodology using the measurement of the reservoir before the implementation of the project activity done by a third Party /31/;
- the proposed project activity does not involve switching from fossil fuels to renewable energy sources at the site of project activity.

The project activity also applies the tools "Tool for the demonstration and assessment of additionality" Version 07.0.0 of 25/11/2011 /10/ and "Tool to calculate the emission factor for an electricity system" Version 3.0.0 of 23/11/2012 /11/. Since no project emissions from fossil fuel combustion have been identified, the tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is not applicable. The tool to calculate the emission factor for an electricity system /11/ is applicable to the project activity since it substitutes grid electricity and supplied electricity to the national grid and it is totally connected to the national grid of Georgia; all the electricity produced will be fed into Georgian grid, as the power plant will be connected to the Batumi substation. The tool for the Demonstration and assessment of Additionality /10/ is applicable as per the methodology requirement.

RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology.

3.6 Project boundary

According to the approved consolidated methodology ACM0002 version 13 /05/, the geographical extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system (Georgian National Grid) that the CDM project power plant is connected to. All the electricity produced will be fed into Georgian grid, as the power plant will be connected to the Batumi substation, thus even if it is expected the 60% of electricity exported to Turkey it will be through the Georgian grid and thus only the electricity system of Georgia is considered in the project boundary. There is one 220 kV transmission line (interconnection line) between Turkey and Georgia currently having import-export capacity up to 150 MW /67/ and being operated under isolated region principle. The project system boundary consists of 3 weirs, 3 water intake structures, 3 power house buildings (turbines and generators), the 154 kV substation and Georgian grid (all power plants connected physically to the electricity system).

The DNA of Georgia issued in 2008 the baseline emission factor for the electricity system in the Country /15/; the document does not clearly mention the delineation of the national grid but in the EF calculation all the plants connected to the national grid have been considered. This is considered acceptable by the validation team as evidence of the delineation of the national grid in accordance with the methodological tool to calculate the emission factor for an electricity system /11/.

Emissions sources included in the project boundary are shown in the table below:

	GHGs involved	Description
Baseline emissions	CO_2	Emissions from electricity that would otherwise be generated by fossil fuel fired power plant connected to the national grid.
Project emissions	NA	Since the power density of each reservoir is greater than 10 W/m^2, (64.92 W/m^2, 47.26 W/m^2 and 32.27 W/m^2, respectively) the CH_4 emission from the reservoirs are accounted to zero, which is in compliance with the methodology ACM0002 /05/. The power density of each HPPs has been calculated based on the area of the reservoir before the implementation of the project activity as per the report provided by a third party in 09/2011 /31/.
Leakage	NA	According the ACM0002 /05/ no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

According the PDD /01/ the project activity will employ diesel motor as back-up power for only emergency purposes. As per the ACM0002 /05/ the use of fossil fuels for the back up or emergency

purpose (e.g. diesel generator) can be neglected in accounting the project emissions from fossil fuel combustion. Thus the project activity does not involve other emissions sources not foreseen by the methodology which contribute by more than 1%.

By checking the information and the project site, RINA can confirm that the project boundary and emissions sources described in the PDD /01/ are accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

3.7 Baseline scenario identification

According to the approved methodology ACM0002 /05/, the baseline scenario for project activity is the installation of a new grid-connected renewable power plant/unit is 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. Since the baseline is defined by the approved methodology, no further analysis is requires as per the paragraph 115 of the VVS /58/.

The baseline emissions are calculated as the net electricity generation that is produces and fed into the grid as result of the implementation of the CDM project activity multiplied by the combined margin CO2 emission factor for the Georgian national grid. The combined margin (CM) consists of the combination of the operating margin (OM) and build margin (BM) was calculated as per the methodological tool to calculate the emission factor for an electricity system /11/. The ex-ante method was selected for the OM and BM calculation based on the most recent information available at the time of the publication of the PDD version 01 of 24/01/2012 /15/. The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey through the Georgian grid. With this regard the validation team confirms that there is no direct line from the project activity to Turkey, the whole electricity produced will be fed into the Georgian grid through the Batumi substation, thus the electricity system considered for the baseline scenario is Georgian grid.

RINA confirms that the approved baseline methodology ACM0002 /05/ has been correctly applied and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity

3.8 Additionality

The additionality of the project activity is demonstrated by applying the methodological tool for the demonstration and assessment of additionality, version 07.0.0 /10/. The demonstration of the additionality of the project activity is mainly based on the investment analysis.

The above opinion of RINA to the additionality of the proposed project is further explicitly explained in the following steps.

3.9 Prior consideration of the clean development mechanism

Project starting date

The starting date of the project activity is 16/03/2012 defined as the date when the purchase agreement for the supply of turbine and generator units is signed by the PP with the electromechanical equipment provider /34/. It has been verified by RINA that the starting date represents the earliest date on which the project participant has committed to expenditure related to the implementation or related to the construction of the project activity as per the Glossary of CMD Terms /12/. From the on-site visit, the implementation of project is just started with the civil works after obtaining the construction permits. The construction permits have been issued by the Ministry of Economic of Adjara Autonomous Republic of Georgia on 06/02/2012 for Kirnati and Khelvachauri I /26/.

Prior consideration of CDM

Since the start date of the project activity is after 02/08/2008 and is also after 27/01/2012 when the PDD was published for the global stakeholder consultation, it can be deemed that the CDM was seriously considered in the decision to implement the project activity, that the benefits of CDM were a decisive factor in the decision to proceed with the project and that continuing and real actions were taken to secure the CDM status for the project in parallel with its implementation.

Nerveless, the PP has notified the starting date of the proposed project activity to UNFCCC on 09/01/2012 /21/ and acknowledged by UNFCCC on 11/01/2012 /30/; the same CDM consideration form has been submitted to the DNA of Georgia by email on 12/01/2012 /32/; moreover the PP has obtained the Letter of Endorsement on 25/11/2011 /36/ for which the request was submitted on 31/10/2011 /33/ informing the DNA of the intention of applying the CDM project.

In conclusion, in accordance with the requirements of the Guidelines on the demonstration and assessment of prior consideration of the CDM /13/ and VVS /58/, RINA can confirm that the CDM was considered seriously in the decision to implement the project activity.

3.10 Identification of alternatives

As discussed in section 3.7 of this report the baseline scenario is defined as 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 methodological tool to calculate the emission factor for an electricity system /11/. Since the approved applied methodology prescribes the baseline scenario, according to VVS paragraph 115 /58/ no further analysis is requested. The project proponent has justified the selection of the baseline scenario in line with the applied methodology and the same is deemed reasonable.

3.11 Investment analysis

Investment analysis is adopted to demonstrate the additionality of the project activity as per the methodological tool for the Demonstration and assessment of Additionality, version 07.0.0 /10/.

Choice of approach

According to the methodological tool for demonstration and assessment of additionality /10/ the investment analysis can be carried out through (1) simple cost analysis, (2) investment comparison analysis or (3) benchmark analysis. The proposed project activity generates economic benefits from selling the electricity, which is an economic benefits other than CDM income and the baseline scenario is the continuation of the current situation (electricity supplied by the grid) that does not involve any investment. The benchmark analysis approach is considered appropriate thus the benchmark analysis has been applied.

Benchmark selection

The project participant has compared the project financials against a benchmark (post-tax equity IRR) of 12.9%. According the guideline on the assessment of investment analysis /13/ 12.9% is the default value for Group 1 Energy industry in Georgia, and it is expressed in percentages in real terms. According the FSR /23/ submitted to the Government of Georgia /29/ the contingency to project cost is included, thus the same is used in the investment analysis for demonstrating the additionality of the proposed project activity.

The applied benchmark is considered suitable to the project activity since it is for equity IRR and the investment analysis /08/ for the project activity is also calculated for equity IRR post-tax, the default value from EB guideline /14/ is sourced from publicly source available, it is expressed in percentages in real terms and the IRR calculation of the project activity is also carried out in real terms.

Input parameters

RINA has validated the input parameters used in the investment analysis presented in the PDD /01/ and IRR spreadsheet /08/and the following steps have been followed to assess the investment analysis:

- Assessment of the sources used for input parameters. RINA confirms that the input parameters used in the financial analysis have been taken form the Feasibility Study Report /23/ developed in October 2011 by an independent entity, Ficthner GmbH & Co and from other documents as listed in the below table.
- Confirmation of the values in the PDD and investment analysis fully consistent with the FSR and from other documents as listed in the below table. RINA compared the input parameters for the financial analysis included in the PDD /01/ with the parameters stated in the FSR /23/ and other supporting documents as listed below and was able to confirm that the values applied are consistent with the values stated in the document mentioned before.
- Assessment of the period between the time of the investment decision and the starting date of the proposed project activity. The FSR /23/ was completed in October 2011, only five months prior to the starting date of the project activity on 16/03/2012 defined as the order date of the technology supplier /34/ and two months before the PDD publication. Given that sufficiently short period of time between the finalization of the FSR and the starting date, it is unlikely in the context of the underlying project activity that the input parameters would have materially changed. Thus, it is reasonable to assume that the FSR /23/ and the other supporting documents listed in the table below have been the basis of the decision to proceed with the investment in the project activity.
- Cross check the input parameters used in the investment analysis. The input parameters used in the financial analysis were cross-checked and all the data sources used for cross-checking were checked during the validation process. The following is carried out:

The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey through the Georgian grid. As confirmed by the PP there is no guarantee price for selling the remaining 60% of the electricity produced. For the electricity which is planned to be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. Even if the whole electricity produces will be fed into the Georgian grid because there is no direct line from the power plant to Turkey, for the additionality being in conservative side, the PP considered the variables that can affect the electricity price and losses taking into account the 60% of electricity that could be sell to Turkey.

Input value	Assessment
Project base data	
Total Installed capacity	112.875 MW. The project consists of 3 weirs and 3 power units, namely, Khelvachauri I HPP (42.808MW), Khelvachauri II HPP (35.028MW) and Kirnati HPP (35.039MW), in a cascade system. The total installed capacity is 112.875MW. The installed capacity of each HPP and the total installed capacity of the Chorokhi hydro power plant is verified through the FSR /23/ and the values are confirmed.
Annual power generation	The total annual power generation of the Chorokhi HPP accounts to 517,880 MWh/year. Each HPP will have the following power generation: (i) Kirnati 146,880 MWh/year, (ii) Khelvachuri-I 205,360 MWh/year and (iii) Khelvachuri-II 165,640 MWh/year. The total and the each power generation is verified through the FSR /23/ and the values are confirmed.

Annual operational hours	The annual operational hours in full power have been calculated based on the total annual generation 517,880 MWh/year and on the total installed capacity of 112.875 MW and account to 4,588 hours/year. The input data used for the calculation have been sourced from the FSR /23/ and the values are confirmed.
Plant load factor Annual electricity delivered to the national grid	As per the FSR /23/ the plant load factor of each HPP are: (i) Kirnati 48.47%, (ii) Khelvachuri-I 55.49%, (iii) Khelvachuri-II 54.48%. The ex-ante plant load factor of the Chorokhi HPP is calculated based on the annual operational hours and it accounts to 52.4%. Since the used data for calculation has been sourced from the FSR /23/, it is confirmed that the plant load factor is determined by a third party contracted by the project participants and thus in compliance with the Guidelines for the Reporting and Validation of Plant Load Factors /17/.
Losses	1.44%. The losses have been applied to only the portion of electricity that could be exported to Turkey. The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey. The three year average (2008-2010) is used for the calculation /49/.
Project lifetime	The expected project lifetime is 50 years /01/. According to the Renewable Energy Essentials Hydropower /47/ many hydropower plants built 50 to 100 years ago are still operating today. Hydropower is the most proven efficient, flexible and reliable source of electricity based on more than a hundred years of experience. Thus the expected project lifetime is considered reasonable.
Investment costs	
Project costs	As per the FSR /23/ the project costs include the cofferdam, dam body (including the land cost), spillway, power house, trailrace channel, switchyard, energy transmission line, power house (mechanical), power (electrical), roads and other facilities, and it accounts to 214,280,896 USD. The FSR /23/ also includes the project costs for each HPP as following: (i) Kirnati 60,275,113 USD, (ii) Khelvachuri-I 81,386,512 USD, (iii) Khelvachuri-II 72,619,271. According the FSR /23/ submitted to the Government of Georgia /29/ the contingency to project cost is included, thus the same is used in the investment analysis for demonstrating the additionality of the proposed project activity. As per the IRR spreadsheet /08/ the unit project cost is 1,663,623 USD/MW that compared with the unit cost of 2-3 million USD/MW available in the Renewable Energy Essentials Hydropower /47/ results 17% lower; thus it can be confirmed the conservativeness of the project costs.
Land costs	As per the FSR /23/ the total land costs account to 9,000,000 USD. The value is cross-checked with the FSR and it is confirmed.
Financing	
Equity share	The equity share is 40% and it is based on financing conditions of similar projects in Turkey /50/. Georgia borders with Turkey and this is the reason on why the project is considered as similar to projects in Turkey. In the absence of a signed financing agreement, it is confirmed that the best possible source has been

	used for the assumption on the financing of the project.
Loan Interest per year	The loan interest rate per year is estimated as 7%. Interest rate associated with business loan vary in most of the cases. The factors which mainly lead to this variation are different degrees of risk involved with the loan, different durations of the loan, tax considerations of the loan and diverse characteristics of the loan. In general the business loans taken for the purpose of purchasing equipment for the business comes up with interest rate varying from 8.25% to 10.25% /51/. In the absence of a signed financing agreement, RINA accepted the estimated 7% and compared with the general loan interest rate it is conservative.
Loan term (no grace period and grace period)	The loan term with no grace period) is 7 years and the loan term with grace period is 3 years. This is based on financing conditions of similar projects in Turkey /50/. Georgia borders with Turkey and this is the reason on why the project is considered as similar to projects in Turkey. In the absence of a signed financing agreement, it is confirmed that the best possible source has been used for the assumption on the financing of the project.
Operation and Maintenance costs	
Annual operating and maintenance costs	As per the FSR /23/ the annual operating cost and O&M costs account to 1,703,064 USD. The O&M cost include costs for maintenance of cofferdam, weir, spillway, power house, trailrace, power transmission line, roads and other facilities. The value is cross-checked with the FSR and it is confirmed. As per the IRR spreadsheet /08/ the unit O&M cost is 4,57 USD/MW while according the Renewable Energy Essentials Hydropower /47/ the operation and maintenance costs are estimated at between USD 5 to 20/MWh for new medium to large hydro plants, and approximately twice as much for small hydro. The value used in the financial analysis is a little bit lower than the estimation published by the International Energy Agency, thus it can be confirmed the conservativeness of the O&M costs applied.
System usage costs	According the Energy Market Regulatory Authority of Turkey and the Turkey electricity transmission company, there is a system usage cost applicable to the electricity to be imported or exported to Turkey /52/. The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey. The usage system cost is applied to the share of electricity (60%) which is planned to be exported to Turkey.
Revenues	
Electricity tariff	The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country /28/ and the remaining 60% should be exported to Turkey. As confirmed by the PP there is no guarantee price for selling the remaining 60% of the electricity produced. For the electricity which could be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. According the electricity market licensing regulation issued by the Turkish Government the electricity can be only exported to Turkey via wholesale or retail companies having license from the Energy Market Regulatory

	Authority and electricity purchase agreement between this company and the project owner depends on bilateral negotiations /41/. As per the FSR /23/ the unit energy price accounts to 5.4 USDcent/kWh, but the PP in conservative manner calculated the electricity price as a weighted average between the best possible estimates for the sale of power to the Georgian grid as per the MoU signed /28/ and Turkish grid. In Turkey the guaranteed renewable energy sources law tariff of 5.5 €cents/kWh is lower than DUY (market balancing and settlement mechanism – liberal electricity market) market price of 8.5 to 10 €cents/kWh /53/. The tariff applied in the investment analysis is 61.20 USD/MWh which is considered as conservative value.
Taxes and depreciation	
Corporate tax rate	The corporate tax rate applicable in Georgia is 15% as confirmed by the National Investment Agency /39/.
Depreciation rate for equipment Depreciation rate for building	The depreciation rate for equipment is 8% and the depreciation rate for building and constructions is 5%. The depreciation rate is in line with the accounting practice available in Georgia as per Pocket Tax Book /37/.
Salvage value	The salvage value is calculated as 10% of the investment costs excluding VAT /08/. There are no guidelines from the EB for CDM or from the Georgian authorities for the calculation of the salvage value. The applied value is deemed appropriate, because the project assets have been fully depreciated after 20 years, so that a relatively small residual value of the project (as compared to the initial investment costs) is appropriate.
Investment period	The investment period is 20 years /08/ and it is consistent with the applicable Guidelines on the assessment of investment analysis /14/ and is therefore deemed appropriate. The operational lifetime of the project is estimated to be 50 years.

Based on the information verified, RINA was able to confirm that the input parameters used in the investment analysis are reasonable and adequately represent the economic situation of the project activity at the time of the investment decision.

Calculation and conclusion

The equity IRR calculations were provided in a spreadsheet /08/. The calculation were verified and found to be correct by RINA as well as the assumptions used in the equity IRR calculation spreadsheet are were deemed to be correct. The equity IRR without the CDM revenues is 10.04% which confirms that the proposed project activity in absence of CDM benefits and compared to the benchmark IRR of 12.90% is financially unattractive.

Sensitivity analysis

A sensitivity analysis was been carried out for parameters contributing more than 20% revenues and costs to demonstrate the robustness of the financial analysis. Reasonable variations of +/- 10% of the electricity price, investment costs, energy yield amount and operating cost have been considered by calculating the variation necessary to reach the benchmark. The parameter varied, and the degrees of variation are in line with the commonly used approach in the investment analysis of CDM projects.

Variable	-10%	0%	10%
Electricity price	8.27%	10.04%	11.76%
Investment costs	11.92%	10.04%	8.46%

Energy yield	8.27%	10.04%	11.76%
Operating costs	10.17%	10.04%	9.90%

Electricity price. To reach the benchmark the electricity price shall increase more than 16.8% considering the weighted price. This is unrealistic because for the electricity which could be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. According the electricity market licensing regulation issued by the Turkish Government the electricity can be only exported to Turkey via wholesale or retail companies having license from the Energy Market Regulatory Authority and electricity purchase agreement between this company and the project owner depends on bilateral negotiations /41/ and for the electricity exported to the national grid a fixed tariff is available as per the signed MoU /28/. Thus it is deemed unlikely that the electricity price can increase more than 16.8%.

Investment costs. To reach the benchmark the investment cost shall decrease by 14.5% Based on the input values in the FSR /23/ and as per IRR spreadsheet /08/ the investment cost per unit is 1,663,623 USD/MW. Comparing the unit cost of 2-3 million USD/MW available in the Renewable Energy Essentials Hydropower /47/ the project costs result 17% lower. Thus it is deemed unlikely that the investment cost can decrease by 14.5%.

Energy yield. To reach the benchmark the energy production shall increase by 16.8%. As per the FSR /23/ the ex-ante plant load factor of the Chorokhi HPP is calculated based on the annual operational hours and it accounts to 52.4% and annual net electricity delivered to the national grid taking into account the 1.44% of losses is calculated to be 510,423 MWh/year. The energy yield is estimated based on the historical data from 1965 to 2005 water supply including the wet-dry water years. Thus it is deemed unlikely that the energy yield can increase by 16.8%.

Operating costs. To reach the benchmark the operating costs shall decrease by more than 50%. Based on the input values in the FSR /23/ and as per IRR spreadsheet /08/ the unit O&M cost is 4,57 USD/MW while according the Renewable Energy Essentials Hydropower /47/ the operation and maintenance costs are estimated at between USD 5 to 20/MWh for new medium to large hydro plants, and approximately twice as much for small hydro. Thus it is deemed unlikely that the operating costs can decrease by more than 50%.

The result of IRR and sensitivity analysis shows that without the income from CERs sale, the proposed project activity is unlikely to be financially attractive.

3.12 Barrier analysis

Barrier analysis is not applied as the additionality of the proposed project activity is demonstrated through investment analysis, which is in line with the methodological tool for the demonstration and assessment of additionality /10/.

3.13 Common practice analysis

The common practice analysis is carried out according to the methodological tool for the demonstration and assessment of additionality /10/ and the guidelines on common practice/54/.

The project comprises an installed capacity of 112.875 MW, therefore the applicable output range is 56.44 MW and 169.32 MW.

According the methodological tool /10/ and the guidelines on common practice /54/, the entire host Country Georgia was chosen as default. The same output is the electricity fed into the grid and only plants that have started commercial operation before the start date of the project activity (16/03/2012). In the electricity system of Georgia /15/ there are six hydro power plants that fall under this output

range and all of them are state owned company. None of them are registered as CDM project or undergoing validation for CDM.

None of the six identified hydro power projects are registered as CDM project or undergoing validation for CDM. Therefore N_{all} = 6.

All the identified hydropower plants are state owned company having different investment climate and risks than the private investments /55/. Thus N_{diff} = 6

Since the Factor F is lower than 0.2 and Nall – Ndiff is smaller than 3 it is demonstrated that the proposed project activity is not a common practice.

3.14 Conclusion

RINA can confirm that all data, rationales, assumptions, justifications and documentation provided by the project participants to support demonstration of additionality are credible and reliable.

By assessing the evidences presented and cross-checking the information contained in, RINA considers the reasonings for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM project activity.

3.15 Monitoring Plan

The approved baseline and monitoring methodology ACM0002 /05/ has been applied. The monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions.

RINA has checked all 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 CDM project activity can be reported ex post and verified.

Parameters determined ex-ante

The ex-ante parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology:

	Data/parameter	Unit	Value applied	Assessment
1	Operating Margin of Georgian national grid (OM)	tCO_2e/MWh	0.53693	The operating margin is sourced from the Baseline Emission Factor for the electricity system of Georgia made available by the Ministry of Environment Protection and Natural Resources /15/.
2	Build Margin of Georgian national grid (BM)	tCO_2e/MWh	0.56002	The build margin is sourced from the Baseline Emission Factor for the electricity system of Georgia made available by the Ministry of Environment Protection and Natural Resources /15/.
3	Combined Margin of Georgian national grid (CM)	tCO_2e/MWh	0.54847	The combined margin is calculated using the OM and the BM sourced from the Baseline Emission Factor for the electricity system of Georgia made available by the Ministry of Environment

				Protection and Natural Resources /15/.

The baseline emission factor is determined ex-ante according to the methodological tool to calculate the emission factor for an electricity system /11/. The combined margin emission factor is determined based on the most recent information available at the time of the PDD version 01 /01/ published for global stakeholder consultation on 27/01/2012 /15/.

Parameters monitored ex-post

The ex-post parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology, and they will be monitored during the crediting period:

	Parameter	Description/Assessment
1	$EG_{facility,y}$ (MWh/year)	Quantity of net electricity generation supplied by the project plant to the grid in year *y*. The quantity of electricity supplied by the project to the grid and the quantity of electricity delivered to the project from the grid is measured in continuous hourly and recorded at least monthly.
2	Cap_{PJ} (W)	Installed capacity of the hydro power plant after the implementation of the project activity. The determination of the installed capacity is yearly and based on nameplates supplied by the manufacturer.
3	A_{PJ} (m^2)	Area of the single or multiple reservoirs measured in the surface of the water after the implementation of the project activity, when the reservoir is full. Measured yearly from topographical maps.

Management system and quality assurance

The electricity generated from the project activity will be exported to the Georgian National Grid through a 154 kV substation near Kirnati HPP; all the 3 HPPs are connected directly to the HV substation in Kirnati HPP as confirmed by the FSR /23/. Two electricity meters will be installed at the HV substation (one main and one back-up) which will be sealed by the grid national company. The quality assurance of the electricity meters is ensured by the mandatory annual calibration process performed by the State Electric System and the Commercial Operator. The meters to be employed will be from 0.5s classes ensuring the error level of the metering will not exceed 0.5%.

An operational and management structure will be appointed for the operation of Chorokhi HPP which will ensure the data collection for the CDM project activity, timely calibration of the monitoring equipment and enduring data collection and data archiving for CDM project activity.

All the data of electricity exported and imported from the Georgian national grid will be recorded and aggregated on a monthly basis and will be cross checked against the electricity sales receipt. All the data and monitoring records will be archived and will be kept at least two years after the end of the last crediting period.

The application of the monitoring methodology is transparent and it is RINA's opinion that the project participant is able to implement the monitoring plan.

3.16 Estimation of GHG emissions

The emission reduction ER_y by the proposed project actiity during the crediting period is the difference between baseline emissions (BE_y), project emission (PE_y) and emissions due to leakage (L_y) as follows.

Baseline emissions

The baseline emissions (BE_y in tCO_2e) are the product of the baseline emission factor ($EF_{grid,CM,y}$ in tCO_2e) times the net electricity supplied by the project activity to the grid ($EG_{facility,y}$ in MWh). The

baseline emission factor for the project activity is determined ex-ante as a combined margin (CM) consisting of the combination of operating margin (OM) and build margin (BM) according the methodological tool to calculate the emission factor for an electricity system /11/. The PDD version 01 of 24/01/2011 /01/ was published for global stakeholder consultation on 27/01/2012; this version of the PDD correctly applied the most recent data vintage from 2004 to 2006 for the baseline emissions calculation /15/ /03/.

The OM is calculated to be tCO_2e/MWh 0.53693 and the BM is calculated to be tCO_2e/MWh 0.56002. The combined grid emission factor of the Georgian National grid is determined ex-ante for the seven years crediting period and it has been calculated as weighted average (w_{OM} = 0.50 and w_{BM} = 0.50) of the operating margin emission factor and the build margin emission factor. The combined margin emission factor is calculated as 0.54847 tCO_2e/MWh, and the net electricity supplied by the project activity to the grid is estimated to be 517,880 MWh/year /08/.

Hence the annual baseline emissions generated by the project activity is calculated to be 284,042 tCO_2e/year.

Project emissions

The project activity is an hydropower plant implemented in new reservoirs. Since the power density of each reservoir is greater than 10 W/m^2, (64.92 W/m^2, 47.26 W/m^2 and 32.27 W/m^2, respectively) the CH_4 project emissions from the reservoirs are accounted to zero, which is in compliance with the methodology ACM0002 /05/. The power density of each HPPs has been calculated based on the area of the reservoir before the implementation of the project activity as per the report provided by a third party in 09/2011 /31/

Leakage

As per the ACM0002 /05/ no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

Emission Reductions

The emission reductions (ER_y) are calculated as the following formulae:

$$ER_y = BE_y – PE_y - LE_y$$

Since the PEy and LEy account to zero, the annual emission reductions generated by the project activity is calculated to be 284,042 tCO_2e/year over the selected seven years renewable crediting period. The estimation of the emission reductions can be replicated using the data and parameter values provided in the PDD /01/ and supporting files for registration /03/. The data sources mentioned have been verified by RINA and confirms that the GHG emissions reduction calculation are complete and transparent, and the data accuracy has been verified.

3.17 Environmental Impacts

An analysis of environmental and social impacts has been undertaken for the project activity, which was completed in 2011/09/, and it has been sufficiently described in section D of the PDD /01/. The Ministry of Environment Protection of Georgia has approved the EIA on 05/01/2012 /22/ and it does not contain any conditions that need monitoring. According the ESIA and its approval, it is confirmed that the proposed project activity is in line with the current environmental legislation in the Host Country. The conclusion of the analysis has been described in the PDD in line with the ESIA and no significant environmental impacts are expected from the project activity.

3.18 Local stakeholders consultation

As confirmed during the on-site visit , the local stakeholder consultation process was organized by the PP between 20/07/2011 and 21/07/2011, which is prior to the publication of the PDD to the UNFCCC website of 27/01/2012. The stakeholder meeting was organized at the time of the ESIA preparation, all the information related to the meeting are available in the ESIA document of 2011 /09/ approved on 05/01/2012 /22/. The meetings were organized by the Gamma Consulting which executed the EIA and held in two villages involved by the implementation of the project activity, Kirnati and Khelvachuari. According to the information available in the approved ESIA /22/, more than 20 people from the Khelvachuari Municipality attended the meeting. The comments raised by the stakeholder were taken into consideration and the appropriate responses were given to them as reported in the approved ESIA /22/ and in the PDD /01/. As per the PDD /01/, it was indicated that the PP has carried out relevant measures to solve the concerns of the stakeholders whom were interviewed during the investigation for the project activity; this was also confirmed during the on-site visit interviewing the stakeholder.

RINA can confirm that the process is adequate and credible for local stakeholder consultation.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD version 01 of 24/01/2012 /01/ was made publicly available on the CDM UNFCCC website and Parties, stakeholders and NGOs through the CDM website (http://cdm.unfccc.int/Projects/Validation/DB/H8P6WZRPE0VH4C8GTKC6M6OJA1NK2U/view.html) invited to provide comments during a 30 days period from 27/01/2012 to 25/02/2012. No public comment(s) was received during that period.

5 VALIDATION OPINION

RINA Services Spa (RINA) has performed validation of the project activity Chorokhi Hydro Power Plant Project in Georgia, with regard to the relevant requirements for CDM activities.

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 RINA validation process covered all the project components.

The project is a unilateral project and hence the host country is the only Party involved in the proposed project activity. The host Party Georgia. Georgia fulfills the participation criteria and have approved the project and authorized the project participant Achar Energy 2007 Ltd.Co. The DNA from Georgia confirmed that the project assists in achieving sustainable development.

The project correctly applies the approved baseline and monitoring methodology ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources , version 13.0.0 of 11/05/2012.

By generating renewable energy from hydropower plant) 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 Chorokhi Hydro Power Plant Project are estimated to be on an average 284,042 tCO_{2e} per year over the selected 7 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 Chorokhi Hydro Power Plant Project in Georgia, as described in the PDD, version 06 of 16/09/2013, meets all relevant UNFCCC requirements for the CDM 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 13.0.0 of 11/05/2012.

RINA thus requests registration of the project as a CDM project activity.

APPENDIX A

VALIDATION PROTOCOL

TABLE 1 MANDATORY REQUIREMENTS

Requirement	Reference	Conclusion
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reductions commitment under Art. 3.	Kyoto Protocol Art.12.2	NA
2. The project shall assist non Annex I Parties contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2	CAR2 OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved	Kyoto Protocol Art.12.5a CDM Modalities and Procedures §40a	CAR2 OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art.12.2 CDM Modalities and Procedure §40	CAR2 OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance (ODA) and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7 CDM Modalities and Procedures Appendix B §2	NA
6. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities and Procedures §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedure §31b	NA
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedure §31b	NA
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	CDM Modalities and Procedure §43	CAR6 CAR7 CAR8 CAR12 CAR13 OK CAR14 CAR15 CAR16
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art.12.5b	CAR9 OK
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are	CDM Modalities and Procedures §37c	OK

Requirement	Reference	Conclusion
considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.		
13. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30/45 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
15. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel.	CDM Modalities and Procedures §37e	OK
16. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §47	OK
17. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords, and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK

TABLE 2 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.	/01/	DR	The title of the project activities is "Chorokhi Hydro Power Project." Version 01, 24/01/2012.		**OK**
A.1.2	Does the project comply with the applicable requirements for completing the PDDs?	/01/ /06/	DR	The PDD version 01 is not in compliance with the applicable requirements as per "Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed new Baseline and Monitoring Methodologies (CDM-NM) as follows: (i) the date in Section B.8 is not expressed as DDMMYYY: (ii) in section C.1.2 the operational lifetime of the project activity is not expressed in years and months; (iii) section A.4.3 does not include detail whether the technology used for the proposed project activity is transferred from Annex I Country, there is no evidence if the technology is environmentally safe and sound, there is no detail about the age and average lifetime of the equipments, the types and levels of services provided by the systems and equipment are not included as well the monitoring equipment and their	~~**CAR17 CL5**~~	**OK**

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

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				location in the system. A new regulatory framework is being implemented by the EB, the last date for submission for request for registration for the project activity under the current rules is 30/09/2012		
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? For projects in existing facilities or utilizing existing equipment, a physical site inspection shall be conducted with the following exceptions:	/01/ /23/ /24/ /25/ /26/ /27/ /28/	DR CC I	The purpose of the project activity is to construct a Greenfield hydro power plant (HPP) by utilizing the water resources at Chorokhi River in Georgia. The project consists of 3 weirs and 3 power units, namely, Khelvachauri I HPP (42.808MW), Khelvachauri II HPP (35.028MW) and Kirnati HPP (35.039MW), in a cascade system. The total installed capacity is 113MW. It is expected that the project activity will generate 517.88 GWh of electricity per year and delivered to the Georgian National grid. The GHG emission reductions resulted from the project is expected to be 284,042 tCO_2e per year. The description and the design of the proposed project activity as per the PDD version 01 has been cross checked with the feasibility study report prepared by a third party (Fitchtner is an international engineering company covering a wide specialist fields in the design of power plants)**. According to the FSR, the total installed capacity is 113.055 MW, whereas in the PDD is stated**	~~**CAR1**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				as 113 MW but the sum of the capacity of each plant is 112.875 MW. From the on-site visit, the implementation of project is just started with the civil works after obtaining the construction permits. The construction permits have been issued by the Ministry of Economic of Adjara Autonomous Republic of Georgia on 06/02/2012 for Kirnati and Khelvachauri I. According to the MoU signed on 01/07/2011, the PP shall reserve the right to make decision within 12 months form the signature of the MoU whether to construct Khelvachauri II due to adverse effects which the construction may have on the agricultural land of Batumi including submerging, demolition or loss of ground. According to the construction permits, the construction of the power plants shall be completed by 2016. The MoU signed on 2009 between the PP and the Georgia Government for utilization of the energy potential of Chorokhi River in the borders of Georgia establishes that 40% of the energy produced will be used for internal consumption of the Country. There is no evidence of the use of the remaining 60% of the electricity that will be produced which could impacts the additionality of the project.		
A.2.2	Does the project activity involve alteration of existing	/01/ /25/	DR	The project activity is a Greenfield		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	installations? If yes, have the differences between pre-project and post-project activity been clearly described in the PDD?	/26/	CC I	project, which does not involve any alteration of existing installation. This is also confirmed by the on-site visit, the project is not yet implemented and the construction started after obtained the construction permits.		
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?	/01/	DR	The information of the Host Party, Georgia, listed in Section A.3 and Annex 1 of the PDD are not consistent. The Project Participant (PP) listed in Section A.3 is Achar Energy 2007 Ltd Co., whereas the PP listed in Annex I is Achar Energy A.S.	~~**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	/01/ /07/	DR, CC	This project is a unilateral project, hence, the host country, Georgia is the only Party involved. Georgia has ratified the Kyoto Protocol on 16/06/1999, and has appointed Ministry of Environment Protection as the Designated National Authority (DNA).		**OK**
A.3.3	Have the letters of approval have been issued?	/01/	DR	LoA from Georgia is not yet available.	~~**CAR2**~~	**OK**
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	/01/	DR	Please refer to section A.3.3.	~~**CAR2**~~	**OK**

<table>
<tr><th colspan="2">Checklist Question</th><th>Reference</th><th>MoV[1]</th><th>Comments</th><th>Draft Conclusion</th><th>Final Conclusion</th></tr>
<tr><td></td><td>LoAs, describe how it was verified that the letter of approval is authentic.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>A.3.5</td><td>Have all private/public project participants been authorized by a Party to the Kyoto Protocol?</td><td>/01/</td><td>DR</td><td>The PP is a private entity as stated in the PDD version 01 and as confirmed by the interaction with the PP during the site visit.
Please refer to section A.3.3</td><td><s>CAR2</s></td><td>OK</td></tr>
<tr><td colspan="7">A.4 Technical description of the project</td></tr>
<tr><td>A.4.1</td><td>Is the project location clearly defined?</td><td>/01/ /23/ /35/</td><td>DR
CC
I</td><td>As indicated in the PDD version 01, the project is located on Chorokhi River, in Khelvachauri town and Kirnati village in Batumi Province, Georgia. The geographical coordinates of the 3 weirs and power houses are summarized as follows:
<table><tr><td>Unit</td><td>Latitude N</td><td>Longitude E</td></tr><tr><td>Kirnati</td><td>41°30’57”</td><td>41°42’55”</td></tr><tr><td>Khelvach-auri I</td><td>41°33’2”</td><td>41°41’51”</td></tr><tr><td>Khelvach-auri II</td><td>41°34’6”</td><td>41°40’23”</td></tr></table>According to the FSR, the geographical coordinates are stated in decimal as following:
Kirnati Power house 726588.01E and 4599605.89N
Khelvachauri I power house: 724966.20E and 4603398.00N
Khevalchauri II power house: 722868.72E and 4605313.98N.
They have been cross-checked through the available tool on the</td><td></td><td>OK</td></tr>
</table>

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				website of the Montana University.		
A.4.2	Does the project design engineering reflect current 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?	/01/ /23/ /34/	DR CC I	The project activity, with a total installed capacity of 113MW, consists of 3 weirs and 3 power units, namely, Khelvachauri I HPP, Khelvachauri II HPP, and Kirnati HPP, in a cascade system. The electricity generated from the project activity will export to the Georgian National Grid through a 154 kV substation near Kirnati HPP. It is envisaged that the annual electricity generation of the project activity is 517.88 GWh, resulting an annual GHG emission reductions of 284,042 tCO_2e. As per the PDD version 01, the technical specification of the project activity is summarized as follows: Kirnatic HPP Turbine: 4 x 8,396kW + 1 x 1,455 kW Khelvachauri I HPP Turbine: 5 x 8,209kW + 1 x 1,763 kW Khelvachauri II HPP Turbine: 5 x 6,717 kW + 1 x 1,443 kW Kirnatic HPP Generator: 4 x 9,878kVA + 1 x 1,712 kVA Khelvachauri I HPP Generator: 5 x 9,658kVA + 1 x 2,074 kVA Khelvachauri II HPP Generator: 5 x 7,902kVA + 1 x 1,697 Kva. The turbine are bulb type, and they	~~**CAR3**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				will be purchased from Chinese manufacturer, thus no technology transfer from Annex I Country will be involved, as referred by the PP during the on-site visit. The electricity produced is supplied to the national grid through the grid connection from the 154 kV substations located at Kirnati HPP; all the 3 HPPs are connected directly to the HV substation in Kirnati HPP. The above technical specification and details have been cross-checked with the FSR and found to be in line. . Moreover the grid connection diagram of project activity in the PDD (figure 2) does not correspond with the information provided by the PP during the on-site visit (all the three plants are directly connected to the substation at Kirnati plant).		
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?	/01/	DR	As confirmed by the PP during the on-site visit, no public funding from Parties is used for the project activity. The project will be financed through 70% debt and 30% equity lbut at the time of the site visit the PP has not yet applied for any request to Banks.		**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?	/01/ /05/ /10/ /11/	DR	The proposed project activity applies ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 12.2 of 25/11/2011 as indicated in the PDD version 01.	~~**CAR4**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				Version 12.2 of the ACM0002 methodology is amended; the latest version available and valid is not used. The project activity also applies the tools "Tool for the demonstration and assessment of additionality" Version 6.0 of 25/11/2011 and "Tool to calculate the emission factor for an electricity system" Version 2.2.1 of 29/09/2011. Since no project emissions from fossil fuel combustion have been identified, the tool to calculate project or leakage CO2 emissions from fossil fuel combustion is not applicable.		
B.2 Applicability criteria of the methodology/tools						
B.2.1	How was it validated that the project activity complies with the applicability criteria?	/01/ /05/ /31/	DR CC I	Please refer to Section B.1.1. Nevertheless, the proposed project activity meets the criteria as per the approved methodology ACM0002 version 12.3, as listed in the following: - the proposed project activity is a new grid-connected renewable HPP at a site where no renewable power plant was operated prior to the implementation of the project. Through the physical on-site visit it is confirmed that the proposed project activity is a new-grid connected renewable HPP at a site where no renewable plant was operated before the implementation of the project. The power connection agreement is not yet available but the PP refers that it	**~~CAR4~~**	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				is expected to be available in June 2012. - the project activity results in creation of 3 new reservoirs with the power density of 64.92 W/m^2, 47.26 W/m^2 and 32.27 W/m^2, respectively, which exceeds the thresholds of 4W/m^2 as indicated in the methodology. The power density is calculated according the applied ACM0002 methodology using the measurement of the reservoir before the implementation of the project activity done by a third Party. - the proposed project activity does not involve switching from fossil fuels to renewable energy sources at the site of project activity Through physical site visit, it is confirmed that the project activity does not involve switching from fossil fuels to renewable energy sources at the project site. xxThe applicability conditions of the applied methodological tools are not discussed in the PDD version 01.		
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?	/01/ /05/	DR CC I	Please refer to Section B.1.1. The baseline scenario for the project activity involves the installation of a new grid-connected renewable power plant is already defined in the approved methodology ACM0002 version 12.3, i.e. electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of	~~**CAR4**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				new generation sources, which is in line with the PDD version 01		
B.3 Project boundary						
B.3.1	Is the project boundary are clearly defined and in accordance with the applied methodology?	/01/ /05/	DR CC I	Please refer to Section B.1.1. According to the approved consolidated methodology ACM0002 version 12.3, the geographical extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system (Georgian National Grid) that the CDM project power plant is connected to.	~~**CAR4**~~	**OK**
B.3.2	What are the project's system boundaries (components and facilities used to mitigate GHGs)?	/01/ /05/ /23/ /15/	DR CC I	The project system boundary consists of 3 weirs, 3 water intake structures, 3 power house buildings (turbines and generators) and the substation (the project power plant) and Georgian grid (all power plants connected physically to the electricity system). The project boundary in of the project detailed in the PDD version 01 is confirmed through the FSR. The DNA of Georgia issued in 2008 the baseline emission factor for the electricity system in the Country. In this document is not clearly delineated the grid but in the EF calculation all the plants connected to the national grid have been considered. This is considered acceptable by the validation team.		**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?	/01/ /05/ /31/	DR CC I	As indicated in the PDD version 01, the source of baseline emission is the CO_2 from power generation of the Georgian national grid. Since the power density of each reservoir is		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				greater than 10 W/m^2, (64.92 W/m^2, 47.26 W/m^2 and 32.27 W/m^2, respectively) the CH_4 emission from the reservoirs are accounted to zero, which is in compliance with the methodology ACM0002 version 12.3.0. The power density of each HPPs has been calculated based on the area of the reservoir before the implementation of the project activity as per the report provided by a third party in 09/2011.		
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?	/01/	DR	The PDD does not mention whether the project involve other emissions sources not foreseen by the methodology which contribute by more than 1% (e.g. back up diesel generators).	~~**CAR5**~~	**OK**
B.4 Baseline scenario identification						
B.4.1	Which baseline scenarios have been identified? Is the list of the baseline scenarios complete?	/01/ /04/ /05/ /10/	DR	**Please refer to Section B.1.1**. According to the approved methodology ACM0002 version 12.3, the baseline scenario for project activity is the installation of a new grid-connected renewable power plant/unit is 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. Since the baseline is defined by the approved methodology, no further analysis is requested. **According to the steps in the additionality tool (1a and 1b) applied by the PP, there is no evidence of which law and**	~~**CAR4**~~ ~~**CAR6**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				regulations have been taken into account for making the consistency analysis with mandatory laws and regulations.		
B.4.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/01/ /04/ /05/	DR	**Please refer to section B.4.1**.	~~**CAR4**~~ ~~**CAR6**~~	**OK**
B.4.3	What is the baseline scenario? Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/01/ /04/ /05/	DR	**Please refer to section B.4.1.**	~~**CAR4**~~ ~~**CAR6**~~	**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?	/01/ /04/ /05/	DR	**Please refer to section B.4.1**	~~**CAR4**~~ ~~**CAR6**~~	**OK**
B.5 Additionality determination						
B.5.1	What tool does the project use to assess additionality? Is this in line with the methodology?	/01/ /05/ /08/ /10/	DR	The project uses "Tool for the demonstration and assessment of additionality" version 06.0 of 25/11/2011 for assessing the additionality of the project activity, which is in line with the applied methodology ACM0002.		**OK**
B.5.2	What is the project additionality mainly based on?	/01/ /05/ /08/ /10/	DR	The demonstration of the additionality of the project activity is mainly based on the investment analysis.		**OK**
B.5.3	Prior consideration of CDM					
B.5.3.1	What is the starting date of the proposed project activity?	/01/ /13/ /34/ /12/	DR CC I	As indicated in the PDD version 01, the start date of the project activity is expected to be 15/03/2012, which is the date when the purchase agreement is expected to be signed by the PP with the electromechanical equipment provider. At the time of the site visit the first purchase contract for Khelvachauri I and Kirnati turbines and generators was signed on	~~**CL4**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				16/03/2012,. The PDD version 01 states the starting date of the project activity as 15/03/2012 which is not consistent with the date when the first purchase contract has been signed (16/03/2012).		
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?	/01/ /13/ /21/ /02/ /30/ /32/ /36/	DR CC I	The project has a starting date of 15/03/2012 and the PDD version 01 has been published for the GSP on 27/01/2012 thus prior of the starting date. According the guidelines on the demonstration and assessment of prior consideration of the CDM, if the PDD is published before the starting date it is not necessary to notify it to UNFCCC and DNA. Nerveless, the PP has notified the starting date of the proposed project activity to UNFCCC on 09/01/2012 and acknowledged by UNFCCC on 11/01/2012; the same CDM consideration form has been submitted to the DNA of Georgia by email on 12/01/2012. Nevertheless, the PP has already obtained the Letter of Endorsement on 25/11/2011 for which the request was submitted on 31/10/2011 informing the DNA of the intention of applying the CDM project.		**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?	/01/ /13/ /21/ /02/ /30/ /32/ /36/	DR CC I	Please refer to section B.5.3.2, thus not applicable.		**OK**
B.5.3.4	Does the timeline of the project confirm that	/01/ /13/	DR	Please refer to section B.5.3.2, thus		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	continuous actions in parallel with the implementation were taken to secure CDM status?	/21/ /02/ /30/ /32/ /36/	CC I	not applicable.		
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 reductions?	/01/ /05/ /08/ /10/ /14/	DR	*The PP demonstrated the additionality of the project activity by applying option III "benchmark analysis" of investment analysis of the methodological tool. This is deemed appropriate as the project generates benefits other than the CERs income (i.e. sales of electricity) and the baseline scenario is "electricity generated from the existing grid" where no investment is required.* *The justification for applying the benchmark analysis rather than one of the alternatives as simple cost analysis or comparison analysis is not included in the PDD version 01.*	~~CAR12~~	OK
B.5.4.2	What the financial indicator is used?	/01/ /05/ /08/ /10/ /14/	DR CC I	The default value for the expected return on equity calculated after tax as per the Guidelines on the assessment of the investment analysis is used. The project fall under Group I Energy industry and for Georgia it accounts to 12,9%. The investment analysis has been conducted on the basis of the equity IRR after taxes, however the PDD on page 14 highlights some inconsistencies in this regard.	~~CAR13~~	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?	/01/ /05/ /08/ /10/ /14/ /37/	DR CC I	The depreciation has been accounted for the total project costs (project cost sheet 11) which includes not only the	~~CAR14~~	OK

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				equipment and the building. According to the accounting practice in the Host Country (Georgian Pocket Tax Book 2011) the depreciation % account to 8% for the equipment and 5% for building and construction (on individual basis), land is not depreciated. Thus the depreciation is not calculated in accordance to the accounting practice. Moreover in the depreciation calculation is included contingency without any justification and evidence on that. Depreciation period is not expected by the accounting practice in the Host Country.		
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?	/01/ /05/ /08/ /10/ /14/ /23/	DR CC I	The investment period considered in the investment analysis is 33 years and no justification and evidences has been provided for the choice; moreover according to the guidelines on the assessment of investment analysis a minimum period of 10 years and a maximum of 20 years should be appropriate. According the FSR a salvage value of 10% has been considered, but the IRR spreadsheet states that the salvage value is applied on the investment cost instead of the installed cost, whereas in reality it is calculated on 10% of the installed costs (installed costs is part of the total investment costs).Evidence of the host country accounting practice is not available.	**~~CAR15~~**	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
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.	/01/ /05/ /08/ /10/ /14/ /23/ /37/ /29/ /27/ /17/ /39/	DR CC I	The input values used in conducting the financial analysis has not been detailed in the PDD. The FSR presents IRR calculation for each subprojects; the IRR of Kirnati is higher than the IRR benchmark of 12.9% The project activity is composed of three sub-components, however the equity IRR is only calculated for the aggregate project and not for each of the sub-projects. Thus it is not demonstrated that it is not commercially attractive that only two out of three or one out of three subprojects are implemented. The input parameters have been sourced from the FSR of October 2011. The FSR is requested to be submitted to the Ministry of Energy and this has been done on 27/11/2011. The Ministry does not issue any approval of that. Investment cost accounts to 223,177,696 USD and include the installed cost, development cost, land usage cost, contingency and VAT. No justification is available for the inclusion of contingencies in the calculation of the investment costs. Net electricity generated account to 507,522 GWh considering 2% of technical losses. The total installed capacity of the power plant is 112.875MW and the PLF accounts to	~~**CAR16**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				48.47% (Kirnati), 55.49% (Khelvachauri I) and 55.48% (Khelvachauri II) respectively. As per the FSR the total installed capacity is 112.876 MW which is slightly different from the capacity in the PDD and in the investment analysis spreadsheet; it is not demonstrated how the 2% technical losses have been determined. The PLF is established in the FSR per each subprojects but there is no evidence on which is the PLF of the project activity. Electricity tariff: the PP stated that 60% of the generated power is supposed to be sold to Turkey with 7 UScent/kWh and 40% to Georgia with 3.0 Scent/kWh. This gives a unit price of 5.4 UScent/kWh for unit power and the average of 6 UScent/kWh is used in the investment analysis. The price available in the FSR is 5.4 UScent/kWh. MoU page 7 mention electricity tariff onlty to Georgia grid to 4.8 UScent/kWh. **The electricity tariff in the investment analysis is not consistent with the electricity price in the FSR, moreover it is not clear how it has been determined and which is the source considered for that**. **There is no evidence if the escalation in the price is expected and considered in the calculation.** O&M costs account to 2,393,097 USD and include the Annual operating and maintenance costs, system usage		

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				and management cost and personnel cost. The breakdown of the annual O&M costs is not included in the FSR thus it cannot be cross-checked; moreover the system usage and management cost and personnel cost, as per the IRR spreadsheet calculation, have been estimated without any evidences for supporting the assumptions made. Loan. The project financing is assumed to be 70% debt and 30% equity according to the guidelines on the assessment of the investment analysis, but no justification has been provided for the financing structure used. No source is provided for the loan term of 10 years, for the grace period duration and for the interest rate of 8% and it is furthermore not clear whether this is a nominal of a real interest rate. No justification is available for the assumptions regarding the payment of interest during the construction period, in particular, please provide evidence that the interest payments are not rolled up in the investment cost. Taxes. The income tax rate of 15% is used and this is confirmed by the National Investment Agency.		
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?	/01/ /05/ /08/ /10/ /14/	DR	A sensitivity analysis has been carried out for parameters contributing more than 20% revenues and costs to		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				demonstrate the robustness of the financial analysis. Reasonable variations of the electricity price, investment costs, energy yield and operating cost have been considered by calculating the variation necessary to reach the benchmark.		
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.	/01/ /05/ /08/ /10/ /14/	DR	The parameter varied, and the degrees of variation are in line with the commonly used approach in the investment analysis of CDM projects.		**OK**
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?	/01/ /05/ /08/ /10/ /14/	DR	No justification has been provided on the variations of each parameter to reach the benchmark and the likelihood for that to happen.	~~**CAR7**~~	**OK**
B.5.5 Barrier analysis						
B.5.5.1	Are the barriers identified complimentary to a potential investment analysis?	/01/ /08/ /10/	DR	Barrier analysis is not applied as the additionality of the proposed project activity is demonstrated through investment analysis, which is in line with the methodological tool “tool for the demonstration and assessment of additionality” version 6.0.		**OK**
B.5.5.2	How were the investment barriers assessed to be real? How does CDM alleviate the investment barriers?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**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?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**OK**
B.5.5.4	How were the technological barriers assessed to be real? How does CDM alleviate the technological barriers?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**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	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	circumstances?					
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?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**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 same circumstances?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**OK**
B.5.5.8	How were the other barriers assessed to be real? How does CDM alleviate the other barriers?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**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?	/01/ /08/ /10/	DR	Please refer to Section B.5.5.1.		**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?	/01/ /08/ /10/ /14/	DR CC	The common practice analysis in the PDD version 01 is not in line with the methodological tool "tool for the demonstration and assessment of additionality" version 6.0. Moreover in the PDD version 01, it is stated that the project activity is a first-of-its kind without demonstrating and providing supporting documents as per the additionality tool. The first-of-its-kind also required the 10 years crediting period while the project activity applies for the renewable crediting period.	~~**CAR8**~~	**OK**
B.5.6.2	How many similar non-CDM-projects exist in the region within the scope?	/01/ /08/ /10/ /14/	DR	Please refer to Section B.5.6.1.	~~**CAR8**~~	**OK**
B.5.6.3	How were possible essential distinctions between the project activity and similar activities assessed?	/01/ /08/ /10/ /14/	DR	Please refer to Section B.5.6.1	~~**CAR8**~~	**OK**
B.5.6.4	What is the data source(s) used for the common practice analysis?	/01/ /08/ /10/ /14/	DR	Please refer to Section B.5.6.1	~~**CAR8**~~	**OK**
B.5.7 Conclusion on the additionality assessment						

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
B.5.7.1	What is the conclusion with regard to the additionality of the project activity?	/01/ /08/ /10/ /14/	DR	Please refer to section B.5.1 – B.5.6.	~~CAR7~~ ~~CAR8~~ ~~CAR12~~ ~~CAR13~~ ~~CAR14~~ ~~CAR15~~ ~~CAR16~~	**OK**
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?	/01 /03/ /05/ /11/	DR	The baseline emission of the project activity is calculated based on the quantity of net electricity generation that is produced and fed into the grid and the combined margin (CM) CO_2 emission factor for grid connected power generation. "Tool to calculate the emission factor for an electricity system" version 2.2.1 has been used to determine the grid emission of the national gird of Georgia, as indicated in the PDD version 01. The formula for baseline emissions stated in the PDD version 01 is not the same as per the applied methodology expected for Greenfield projects.	~~CAR18~~	**OK**
B.6.1.2	Have conservative assumptions been used when calculating the baseline emissions and are the uncertainty estimates properly addressed?	/01 /03/ /05/ /11/ /16/ /17/ /18/ /15/ /23/	DR CC I	The EF calculation has been determined according with the methodological tool "Tool for the Demonstration and assessment of Additionality" version 2.2.1 and the data used for the calculation have been sourced from the Baseline Emission Factor for the electricity system of Georgia of 2008. The data used in the EF calculation	~~CAR9~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				are updated till 2006 and there is no evidence if they are the latest data available at the time of validation commencement or if more updated data are available. The ex-ante total electricity production is sourced from the FSR and it accounts to 517.88 GWh. Both the PDD and the ERs spreadsheet does not clearly describe how the electricity production is calculated.		
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?	/01 /03/ /05/ /31/	DR CC I	As stated in the PDD version 01, the power density of three new reservoirs resulted from proposed project activity is 64.92W/m^2, 47.26W/m^2 and 32.27W/m^2, respectively. The project emission is thus zero, which is in line with the applied methodology ACM0002 version 12.3. The power density is calculated according to the applied ACM0002 methodology using the measurement of the reservoir before the implementation of the project activity done by a third Party.		**OK**
B.6.2.2	Have conservative assumptions been used when calculating the project emissions and are the uncertainty estimates properly addressed?	/01 /03/ /05/ /31/	DR CC I	Please refer to Section B.6.2.1.		**OK**
B.6.3 Leakage						
B.6.3.1	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/01/ /03/ /05/	DR	As per the applied methodology ACM0002 version 12.3, potential leakage emissions such as power plant construction and upstream emissions from fossil fuel used are considered as negligible.		**OK**
B.6.3.2	Have conservative assumptions been used when	/01 /03/	DR	Please refer to section B.6.3.1		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	calculating the leakage and are the uncertainty estimates properly addressed?	/05/				
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?	/01 /03/ /05/ /11/ /16/ /17/ /18/ /31/	DR CC I	Please refer to section B.6.1, B.6.2 and B.6.3. **The emission reductions are calculated based on the electricity generated and not based on the electricity supplied to the grid**.	~~**CAR9**~~	**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?	/01/ /03/ /05/ /11/ /15/	DR CC I	The parameters available at the time of validation, which are not monitored during the crediting period, as follow*:* 1. $EG_{m,y}$ $EG_{k,y}$: Net quantity of electricity generated and delivered to the grid by power unit m or k in year y. 2. $FC_{i,y}$: Amount of fossil fuel type i consumed in the project electricity system in year y 3. $NCV_{i,y}$: Net calorific value (energy content) of fossil fuel type i in year y 4. $EF_{CO2,i,y}$: CO_2 emission factor of fossil fuel type i in year y (tCO_2/TJ) – information was obtained from the default value at the lower limit of the uncertainty at a 95% confidence interval of 2006 IPCC Guidelines for National Greenhouse Gas Inventories as indicated in the PDD version 01 5. $\eta_{m,y}$: average energy conversion efficiency of power unit m in year y(%) – default value in Annex I of "Tool to calculate the emission factor for an electricity system" version 2.2.1 as indicated in the PDD version 01.	~~**CAR9**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				Please refer to section B.6.1.2. EFgrid,CM,y is not mentioned in parameters available at validation nor monitoring parameters.		
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?	/01/ /05/	DR	As per the PDD version 01, the monitoring plan described complies with the requirements of the methodology applied ACM0002.		**OK**
B.7.1.2	Does the monitoring plan contain all necessary parameters and are they clearly described?	/01/ /05/ /11/	DR	As per the PDD version 01, the parameters are monitored during the crediting period are listed as follows: 1. $EG_{facility,y}$: quantity of net electricity generation supplied by the project plant to the grid in year y 2. Cap_{PJ}: the installed capacity of the HPP after the implementation of the project 3. A_{PJ}: the area of the reservoir measured in the surface of the water when the reservoir is full after the implementation of the project This is in line with ACM0002.		**OK**
B.7.1.3	Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate? Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	/01/ /05/	DR I	As indicated in the PDD version 01, the electricity supplied to the grid and imported by the grid by the project activity will be measured by 2 redundant meters. The accuracy of the measurement equipment is not addressed in the PDD version 01.	~~**CAR10**~~	**OK**
B.7.1.4	Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/01/ /05/	DR	The monitoring and recording frequency of the quantity of net	~~**CAR10**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				electricity supplied to the grid is not clearly indicated in section B.7.1 of PDD version 01. The monitoring and recording frequency for Cap_{PJ} and A_{PJ} will done on an annual basis as per the PDD version 01, which is in line with the applied methodology.		
B.7.1.5	Is the recording frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/01/ /05/	DR	Pease refer to Section B.7.1.4	~~**CAR10**~~	**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?	/01/ /09/ /22/	DR CC I	With the interaction with the PP and according to the approved ESIA there are not sustainable development indicators/environmental impacts warranted by the legislation of Georgia.		**OK**
B.7.2.2	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/01/ /09/ /22/	DR CC I	Please refer to section B.7.2.1		**OK**
B.7.2.3	Are the sustainable development indicators in line with stated national priorities in the host country?	/01/ /09/ /22/	DR CC I	Please refer to section B.7.2.1		**OK**
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?	/01/ /23/	DR I	At the time of the site visit, the project start the implementation with construction of the HPPs; the monitoring equipment are not yet purchased, but according to the FSR it can be confirmed that the 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)?	/01/	DR	**The PDD version 01 does not transparently describe the procedure for day-to-day records handling**.	~~**CL2**~~	**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
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?	/01/	DR	All data collected for preparing of the monitoring report will be cross-checked by the CDM consultant, FutureCamp Turkyie, as per the PDD version 01. **The PDD version 01 mention the applicability of quality assurance and quality control procedures, but at the time of the site visit there were not available.**	**FAR1**	**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?	/01/ /05/	DR	As indicated in the PDD version 01, the monitored data will be kept for two years after the end of the crediting period or the last issuance of CERs.		**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?	/01/ /13/ /34/	DR CC I	As indicated in the PDD version 01, the start date of the project activity is expected to be 15/03/2012, which is the date when the purchase agreement is expected to be signed by the PP with the electromechanical equipment provider. At the time of site visit, the first purchase contract for Khelvachauri I and Kirnati turbines and generators was signed on 16/03/2012,. **Please refer to section B.5.3.1**.	**~~CL4~~**	**OK**
C.1.2	What is the expected operational lifetime of the project activity? Is it reasonable?	/01/	DR	The expected lifetime of the project is 33 years as indicated in PDD version 01. **No evidences are available for justifying the 33 years operational lifetime, moreover the used tool is applicable for the remaining lifetime of the equipment in case of retrofit projects**.	**~~CAR11~~**	**OK**
C.2 Start date of crediting period						

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
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?	/01/	DR	The expected stating date of the project activity is 01/01/2014 or the date of registration, whichever occurs later.		**OK**
C.2.2	What is the length of the crediting period? Is it clearly defined and reasonable?	/01/	DR	A renewable crediting period of 7 years is chosen by the PP, as per the PDD version 01.		**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?	/01/ /09/ /22/	DR I CC	Yes, the analysis of environmental and social impacts has been undertaken for the project activity, which was completed in 2011, and the conclusions of the report is highlighted in Section D.1 of the PDD version 01. The ESIA is approved by Ministry of Environment Protection of Georgia on 05/01/2012.		**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?	/01/ /09/ /22/	DR I CC	The ESIA is approved by Ministry of Environment Protection of Georgia on 05/01/2012 and does not contain any conditions that need monitoring.		**OK**
D.1.4	Is it the project in line with the current environmental legislation in the host Country?	/01/ /09/ /22/	DR I CC	According the ESIA and its approval, it is confirmed that the proposed project activity is in line with the current environmental legislation in the Host Country.		**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?	/01/ /09/ /22/	DR CC I	Yes, the local stakeholder consultation process was organized by the PP between 20/07/2011 and 21/07/2011, which is prior to the publication of the PDD to the UNFCCC website of 27/01/2012. The stakeholder meeting was organized at the time of the ESIA		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
				preparation, all the information related to the meeting are available in the ESIA document of 2011 approved on 05/01/2012. The meetings were organized by the Gamma Consulting which executed the ESIA and held in two villages involved by the implementation of the project activity, Kirnati and Khelvachuari.		
E.1.2	Area the stakeholders invited be considered as regards commenting the proposed project activity?	/01/ /09/ /22/	DR CC I	According to the information available in the approved ESIA, more than 20 people from the Khelvachuari Municipality attended the meeting. The comments raised by the stakeholder were taken into consideration and the appropriate responses were given to them as reported in the approved ESIA. **The number and the breakdown of stakeholders whom attended the meetings are not cleared indicate in the PDD version 01**.	~~**CL3**~~	**OK**
E.1.3	Is the summary of the comments received from the stakeholders, provided in the PDD complete?	/01/ /09/ /22/	DR CC I	The comments raised by the stakeholder were taken into consideration and the appropriate responses were given to them as reported in the approved ESIA. The PDD version 01 contains the same information of the approved ESIA.		**OK**
E.1.4	Has due account been taken by the project participants of any stakeholder comments received?	/01/ /09/ /22/	DR CC I	As per the PDD version 01, it was indicated that the PP has carried out relevant measures to solve the concerns of the stakeholders whom were interviewed during the investigation for the project activity.		**OK**
E.1.5	If a stakeholder consultation process is required by regulations/laws in the host Country, has the	/01/ /09/ /22/	DR CC	Please refer to section E.1.1		**OK**

Checklist Question		Reference	MoV[1]	Comments	Draft Conclusion	Final Conclusion
	stakeholder consultation process been carried out in accordance with such regulations/laws?		I			

TABLE 3 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 According to the FSR the total installed capacity is 113.055 MW, in the PDD is stated as 113 MW but the sum of the capacity of each plant is 112.875 MW There is no evidence of the use of the remaining 60% of the electricity that will be produced which could impacts the additionality of the project.	A.2.1	In some part of the PDD, installed capacity is rounded up to the closest whole number for simplicity, but in section A.4.3, where technical characteristics of the project activity are given, exact figures of each turbines are indicated. Correct figure is 112.875 MW, which is the total installed capacity of all turbines in the project activity. There is no guarantee price for selling of remaining 60% electricity. Project owner plans to export remaining amount to the Turkey. There is no certainty for exporting to the Turkey as companies need to enter a tender process in order to get capacity allocation from interconnected power lines which will be built between Turkey and Georgia. In that regard, project owner takes a significant risk for sale of electricity to be produced in the power plant. Please refer to sensitivity analysis part of PDD for more explanation and references	25/09/2012. The PDD version 02 /01/ has been updated accordingly. Checking the FSR /23/ it is confirmed that total installed capacity of the hydropower plant system is 112,875 MW. As confirmed by the PP there is no guarantee price for selling the remaining 60% of the electricity produced. For the electricity which is planned to be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. According the electricity market licensing regulation issued by the Turkish Government the electricity can be only exported to Turkey via wholesale or retail companies having licence from the Energy Market Regulatory Authority and electricity purchase agreement between this company and the project owner depends on bilateral negotiations /41/. CAR 1 is closed.
CAR 2	A.3.3	DNA of Georgia issued LoA for the project	25/09/2012. The DNA of Georgia issued

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
LoA from Georgia is not yet available yet.	A.3.4 A.3.5	activity on 01 May 2012. LoA is submitted DOE on 2 May 3012 via e-mail.	the LoA on 01/05/2012 /42/ approving the project activity and authorizing Achar Enegy 2007 Ltd as project participant. The LoA clearly states that Georgia is party of the Kyoto Protocol, that the participation is voluntary, and that the project will contribute to sustainable development. The LoA was received directly from the PP and refer to the precise project activity in the PDD /01/ and has been issued by the DNA of Georgia, thus RINA has no reason to doubt of its authenticity. CAR2 is closed.
CAR 3 The PDD version 01 does not include detail if the technology used for the propose project activity is transferred from Annex I Country. Moreover the grid connection diagram of project activity in the PDD (figure 2) does not correspond with the information provided by the PP during the on-site visit (all the three plants are directly connected to the substation at Kirnati plant).	A.4.2	In last paragraph of section A.4.3 of the PDD, it is indicated that the technology used for the project activity will be transferred from non-Annex I country, as turbine-generator set will be purchased by a Chinese manufacturer. Figure-2 of the PDD is corrected to be in line with the Feasibility Report (Section 1.8) of the project activity.	25/09/2012.The technology used for the proposed project activity is not transferred from Annex I Country; a purchase contract with a Chinese supplier for turbines and generators is signed on 16/03/2012 /34/. According the FSR /23/ the hydroelectric power plants grid connections will be from 154 kV substation located near Kirnati Weir and HEPP. The PDD version 02 /01/ is updated accordingly. CAR3 is closed.
CAR 4 Version 12.2 of the ACM0002 methodology is amended; the latest version available and valid is not used. The applicability conditions of the applied methodological tools are not discussed in the PDD version 01**.**	B.1.1 B.2.1 B.2.2 B.3.1 B.4.1 B.4.2 B.4.3 B.4.4	Version of the ACM0002 is revised to be the latest version, which is 13.0.0 in whole PDD. Discussion on applicability conditions of the applied methodological tools are added into section B.1 of the PDD.	25/09/2012. The PDD version 02 /01/ has been updated accordingly and version 13.0.0 of the Baseline and monitoring methodology ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources, is applied. Based on the methodology requirements the applicability criteria of the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			methodological tool applied by the project have been discussed. The tool to calculate the emission factor for an electricity system /11/ is applicable to the project activity since it substitutes grid electricity and supplied electricity to the national grid and it is totally connected to the national grid of Georgia. The tool for the Demonstration and assessment of Additionality /10/ is applicable as per the methodology requirement. CAR4 is closed.
CAR 5 The PDD does not mention if the project involve other emissions sources not foreseen by the methodology which contribute by more than 1% (i.e. back up diesel generators).	B.3.4	The project will employ one diesel back-up generator for each power plant of the project activity. However, as these generators will only be utilized when the power plants will not be in operation and there will be a problem in the grid (ie. during emergency cases), the amount of fuel usage by generators will be minimum. Also, according to methodology (ACM0002, page 6), diesel back-up generators related emissions can be neglected. While electricity generation by cost free resource (hydro) is available, electricity generation by expensive diesel fuel by back-up generators for sale is not rational. On the other hand, as expected annual average emission reduction by realization of the project activity is high, there is no possibility of emission generation by diesel generator exceeds %1 of the project's emission reduction. The project will not involve other emissions sources not foreseen by the methodology which contribute by more than 1%.	25/09/2012. According the PDD version 02 /01/ the project activity will employ diesel motor as back-up power for only emergency purposes. As per the ACM0002 /05/ the use of fossil fuels for the back up or emergency purpose (e.g. diesel generator) can be neglected in accounting the project emissions from fossil fuel combustion. Thus the project activity does not involve other emissions sources not foreseen by the methodology which contribute by more than 1%. CAR5 is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		These explanations are added in section B.3 and in section B.7.2 of the PDD.	
CAR 6 According the steps in the additionality tool (1a and 1b) applied by the PP, there is no evidence of which law and regulations have been taken into account for making the consistency analysis with mandatory laws and regulations.	B.4.1 B.4.2 B.4.3 B.4.4	Main laws and regulations which project activity is consistent is provided in section B.5 of the PDD. Other laws and regulations regarding environment and social aspects are also provided in D.2 section of the PDD.	25/09/2012. Law and regulations from Georgian Government /43/ /44/ have been taken into account for making the consistency analysis with mandatory laws and regulations. The law encourage the use of indigenous hydro, renewable alternative and gas resources. The PDD version 02 /01/ is updated accordingly. CAR6 is closed.
CAR 7 No justification has been provided on the variations of each parameter to reach the benchmark and the likelihood for that to happen.	B.5.4.8 B.5.7.1	Justification of parameters used for financial analysis and variations for sensitivity analysis in Sensitivity Analysis part of PDD (section B.5, Sub-step 2-d).	25/09/2012. A sensitivity analysis is carried out for parameters contributing to more than 20% to revenues or costs in order to check the robustness of the financial analysis. Reasonable variations of +/- 10% of the electricity price, investment costs, energy yield amount and operating cost were checked. Energy price. According the FSR /23/ the 60% of the generated power is supposed to be sold to Turkey with 70 USD/MWh and 40% to Georgia with a fixed tariff. **Evidences to support the fixed tariff in Georgia in not available**. The weighted average of electricity price used in the investment analysis is 61.20 USD/MWh. **The average will be confirmed when the evidences of the fixed tariff in Georgia will be available**. To reach the benchmark the electricity price shall increase by 18% considering the weighted price. This is unrealistic because for the electricity which is

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			planned to be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. According the electricity market licensing regulation issued by the Turkish Government the electricity can be only exported to Turkey via wholesale or retail companies having licence from the Energy Market Regulatory Authority and electricity purchase agreement between this company and the project owner depends on bilateral negotiations /41/ and for the electricity exported to the national grid a fixed tariff is available **(to be confirmed when the evidences of the fixed tariff in Georgia will be available).** Investment cost: the investment cost should decrease by 15% for reaching the IRR benchmark. Based on the FSR /23/ the investment cost per unit is about 1.9 million USD/MW. **The website source http://www.iea.org/papers/2010/Hydropower_Essentials.pdf does not work**. Energy yield amount. The energy production should increase by 18% for reaching the IRR benchmark. The PLF is determined as per the FSR /23/ and it corresponds to 52.4%. The average rate of new hydro power projects is 47% based on the MoU signed with Georgian Government. **The website http://www.menr.gov.ge/common/get_doc.aspx?doc_id=7472 make available just a table but there is no evidence that this is a MoU signed with Georgian Government**. O&M costs. The O&M costs even decrease 50% does not reach the IRR benchmark. According the FSR /23/ the O&M cost per unit is estimated to be 4.57

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			USD/MW. **The website source http://www.iea.org/papers/2010/Hydropower_Essentials.pdf does not work.** CAR7 is not closed.
		Response to Review-1: Evidences for fixed tariff in Georgia was submitted to DOE during site visit. MoU between Achar and Georgia is submitted to DOE again as an attachment of this protocol (MoU-between-Achar-Georgia.pdf, price is indicated in page 7, article 3.4)	20/11/2012. According the MoU /27/ the electricity is sell in accordance with the Guaranteed Power Purchase Agreement with a tariff of 4,8 USD Cent per kWh.
		Referred website of IEA is relocated. Please see working website here: http://www.iea.org/publications/freepublications/publication/Hydropower_Essentials.pdf. All references to this document in PDD and other documents are revised accordingly.	The relocated website /47/ is working and the assessment of the source is available in sensitivity analysis section.
		Column 8 ("MoU signing date") in the table opened with this link: **http://www.menr.gov.ge/common/get_doc.aspx?doc_id=7472** shows date for all plants given in this table MoU is signed with project owner and Georgia in indicated dates.	As per the signed date of the MoU table made available by the Government of Georgia the MoU was signed on 10/06/2011 /48/. CAR7 is closed
CAR 8 The common practice analysis in the PDD version 01 is not in line with the methodological tool "tool for the demonstration and assessment of additionality" version 6.0. Moreover in the PDD	B.5.6.1 B.5.6.2 B.5.6.3 B.5.6.4	Common practice analysis is performed in according to latest version of Additionality Tool.	25/09/2012. The common practice analysis is carried out according the additionality tool version 06.0.0 which has been amended and a more updated version is available.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
version 01 it is stated that the project activity is a first-of-its kind without demonstrating and providing supporting documents as per the additionality tool. The first-of-its-kind also required the 10 years crediting period while the project activity applies for the renewable crediting period.	B.5.7.1	First-of-its kind argumentation is removed from PDD. Response to Review-1: Version of Additionality tool is updated in accordance to latest version (06.1.0) of the tool throughout the PDD and common practice analysis is updated in accordance with new version.	The common practice analysis is applicable to the project activity since the measure is the switch of technology with or without change of energy source. The default geographical area is selected and thus the host Country Georgia is considered and the applicable output range is identifies as 56.44 MW and 169.32 MW. 8 power plants that deliver the same output/capacity within the applicable range calculated and have started commercial operation before the start dated of the project have been identified /45/, Nall=8. The determination of Ndiff is not in accordance with the methodological tool which requires to identify between Nall the power plants that apply technologies different that the technology applied in the proposed project activity. Among Nall 6 are hydro power plants and 2 are thermal power plants. The justification provided by the PP is not in line with Step 3 of the additionality tool. In the PDD version 02 /01/ the first-of-its-kind argumentation is removed. CAR8 is not closed. 20/11/2012. The PDD version 03 /01/ is updated accordingly and version 06.1.0 /10/ of the methodological tool for the demonstration and assessment of additionality is used. **According Step 2 of the methodological tool the PP shall identify in the applicable geographical area all plants that deliver the same output or capacity, within the applicable output range calculated in**

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		Response to Review-2: Common practice analysis part of the PDD is revised to be in line with Additionality tool version 06.1.0	**Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Step 2 in the PDD version 3 identify power plants using the same energy source of the proposed project activity. Step 3 of the methodological tool requires to identify within the plants identified in Step 2, those that apply technologies different that the technology applied in the proposed project activity. Since Step 2 in the PDD is not in accordance with the methodological tool, step 3 is also not in line**. **CAR8 is not closed**. 27/11/2012. The PDD version 03 /01/ is updated accordingly. The common practice procedure is correctly applied. CAR8 is closed.
CAR 9 The data used in the EF calculation are updated till 2006 and there is no evidence if they are the latest data available at the time of validation commencement or if more updated data are available. The emission reductions are calculated based on the electricity generated and not based on the electricity supplied to the grid. Both the PDD and the ERs spreadsheet does not clearly describe how the electricity production is calculated.	B.6.1.2 B.6.4.1 B.6.5.1	DNA of Georgia updated the CM factor calculation on July 2012: http://moe.gov.ge/files/PDF%20%20qartuli/Updated_Baseline_EF_2004-2006_24_July_2012.pdf. It can be seen that, still the latest available data for EF calculation is from 2006. HV substation to be built for the project activity will be transferred to the Georgian Transmission System Operator and will be a part of grid. Meters will be placed at the HV substation, thus, will measure the	25/09/2012. The updated version of the Baseline Emission Factor for the Electricity System of Georgia /45/ has been published on 24/07/2012 but still contains data updated until 2006 for the determination of the CM_{EF}. The net electricity generation is estimated in the FSR /23/ and it is 517,880 MW/year. The measurement will be at the substation and thus there will be no line

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
EFgrid,CM,y is not mentioned in parameters available at validation nor monitoring parameters.		net electricity supplied to the grid as there will be no line loss. In both PDD and ER calculation sheet it is clarified that generation amount is calculated by summing up the each power plants in the project activity and based on FSR. EFgrid,CM,y is added to the to the section for parameters available at validation. As ex-ante option is selected for EF calculation, EFgrid,CM,y will not be monitored.	loss. The ERs calculation in the PDD version 02 /01/ and in the spreadsheet version 2.1 /03/ have been estimated based on the net electricity estimated in the FSR /23/ that is 517,880 MW/year thus the ERs have been estimated to be 284,042 tCO_2e/year. Section B.6.2 of the PDD version 02 /01/ has been updated accordingly including the missing parameters available at validation and for which is not requested to be monitored because fixed ex-ante. CAR9 is closed.
CAR10 The accuracy of the measurement equipment is not addressed in the PDD version 01. The monitoring and recording frequency of the quantity of net electricity supplied to the grid is not clearly indicated in section B.7.1 PDD version 01.	B.7.1.3 B.7.1.4 B.7.1.5	Accuracy level of the metering equipments is added to the table for EGfacility,y in section B.7.1 of the PDD. Monitoring and recording frequency is added to the section B.7.1 of the PDD.	25/09/2012. The meters employed for monitoring the net electricity produced will be of 0.5s classes ensuring the error level +/- 0.5%. The net electricity produced will be measured hourly and recorded monthly. The PDD version 02 /01/ is updated accordingly. CAR10 is closed.

TABLE 4 FORWARD ACTION REQUEST

Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
FAR 1 The PDD version 01 mention the applicability of quality assurance and quality control procedures, but at the time of the site visit there were not available.	B.7.3.3	The quality assurance and quality control procedures will be available when the project plant will enter into operation. Validation conclusion: quality assurance and quality control procedures shall be checked at the first verification.

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per le seguenti aree tecniche: for the following technical areas:	**1.2, 13.1**

AREE TECNICHE **TECHNICAL AREAS**	**DESCRIZIONE DELL'AREA TECNICA** ***TECHNICAL AREA DESCRIPTION***	**SCOPO SETTORIALE** ***SECTORAL SCOPE***
1.2	Energy generation from renewable Energy sources	1
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Divisione Certificazione.
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REVISIONE ***REVISION***	**DATA** ***DATE***	**MOTIVAZIONI PER LA REVISIONE** ***REASON FOR THE REVISION***
0	18-01-10	-
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per le seguenti aree tecniche: for the following technical areas:	**1.2**

AREE TECNICHE **TECHNICAL AREAS**	**DESCRIZIONE DELL'AREA TECNICA** ***TECHNICAL AREA DESCRIPTION***	**SCOPO SETTORIALE** ***SECTORAL SCOPE***
1.2	Energy generation from renewable Energy sources	1

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in accordance with the instructions of the Certification Division.

REVISIONE ***REVISION***	**DATA** ***DATE***	**MOTIVAZIONI PER LA REVISIONE** ***REASON FOR THE REVISION***
0	04-12-2010	-
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per le seguenti aree tecniche: for the following technical areas:	**1.2, 13.1**

AREE TECNICHE **TECHNICAL AREAS**	**DESCRIZIONE DELL'AREA TECNICA** ***TECHNICAL AREA DESCRIPTION***	**SCOPO SETTORIALE** ***SECTORAL SCOPE***
1.2	Energy generation from renewable energy sources	1
13.1	Waste handling and disposal	13

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REVISIONE ***REVISION***	**DATA** ***DATE***	**MOTIVAZIONI PER LA REVISIONE** ***REASON FOR THE REVISION***
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AREE TECNICHE **TECHNICAL AREAS**	**DESCRIZIONE DELL'AREA TECNICA** ***TECHNICAL AREA DESCRIPTION***	**SCOPO SETTORIALE** ***SECTORAL SCOPE***
1.2	Energy generation from renewable Energy sources	1
3.1	Energy demand	3
13.1	Waste handling and disposal	13

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REVISIONE ***REVISION***	**DATA** ***DATE***	**MOTIVAZIONI PER LA REVISIONE** ***REASON FOR THE REVISION***
0	26-10-2011	-
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per le seguenti aree tecniche: for the following technical areas:	**1.2, 13.1**

AREE TECNICHE **TECHNICAL AREAS**	**DESCRIZIONE DELL'AREA TECNICA** ***TECHNICAL AREA DESCRIPTION***	**SCOPO SETTORIALE** ***SECTORAL SCOPE***
1.2	Energy generation from renewable energy sources	1
13.1	Waste Handling and Disposal	13

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