



VERIFICATION REPORT for the CDM Project Activity

Abohar Power Generation Private Limited

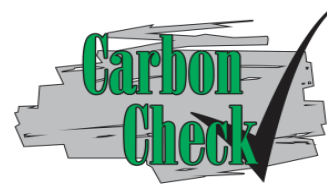
Abohar Branch Canal Based Small
Hydro Power Project in Punjab, India

In
India

Report No: CCL257/CDM/VER/PHG/20140303/A01

Report Date: 03 June 2014

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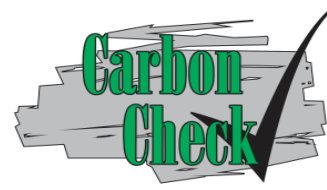
I. PROJECT DATA

Project title:	Abohar Branch Canal Based Small Hydro Power Project in Punjab, India		
Registration No. / Date:	4856 / 28-12-2011		
Monitoring period:	01-12-2012 to 31-03-2014 (including both the days)	Monitoring Period Number:	02
Methodology:	AMS I.D, Version 16	Sectoral Scope/Technical Area	1/1.2
Publication of MR:	The monitoring report (version 01, 07-04-2014) was published at UNFCCC website on 10-04-2014 http://cdm.unfccc.int/Projects/DB/TUEV-SUED1306322299.73/iProcess/CarbonCheck_Cert1397041819.51/view		
Final Monitoring Report:	Version 02, 08-05-2014		
Average emission reductions:	Estimated	31,326 tCO ₂ e (calculated for the monitoring period from 01/12/2012 to 31/03/2014, i.e. 486 days)	Verified: 26,358 tCO ₂ e (01/12/2012 to 31/12/2012 – 2,236 tCO ₂ e; 01/01/2013 to 31/03/2014 – 24,122 tCO ₂ e)
GHG reducing measure/technology:	The GHG emission reduction would happen by displacing the fossil fuel dominated grid electricity equivalent to the net renewable electricity supplied by the hydroelectric power project.		

Party	Project participants	Party considered a project participant	Contract party
India (Host)	Abohar Power Generation Private Limited	No	<input checked="" type="checkbox"/>

II. VERIFICATION TEAM (compliance of § 228 b of VVS)


Verification Team				Role								
Full name	Affiliation	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting/trainee Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting/Trainee Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Amit Anand	RSA	1.2, 13.1	X		X		X					
Sanjay Kumar Agarwalla	India	1.2			X		X					
Vikash Kumar Singh	RSA	1.2, 3.1,13.1								X		
Anubhav Dimri	RSA	1.2, 3.1										X

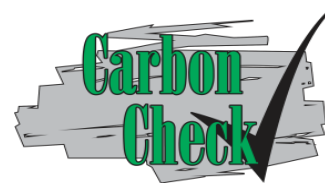


III. VERIFICATION REPORT

Verification Phases and Status:

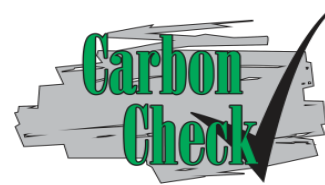
- ☒ Desk Review ☒ Follow up interviews, On Site Assessment
☒ Resolution of outstanding issues ☐ Corrective Actions / Clarifications Requested
☒ Full Approval and Submission for Issuance ☐ Rejected

Verification Report	Version	Date
	<u>Version 1</u> <u>Version 2</u> <u>Version 3</u>	15/05/2014 02/06/2014 03/06/2014
Final Approval Date	Approval	Distribution
Date: 2014-06-03	 By: Priyesh Ramlall	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organizational unit <input type="checkbox"/> Limited Distribution <input type="checkbox"/> Unrestricted distribution



Abbreviations

APGPL	Abohar Power Generation Private Limited
CA	Corrective Action / Clarification Action
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCL	Carbon Check (Pty) Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entities
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Verification Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
kWh	Kilo Watt hour
MWh	Mega Watt Hour
NABL	National Accreditation Board for Testing and Calibration Laboratories
NEWNE	Northern, Eastern, Western, and North-Eastern Grid
OSV	On Site Visit
PPA	Power Purchase Agreement
PSEB	Punjab State Electricity Board
QC/QA	Quality control/Quality assurance
RMP	Revised Monitoring Plan
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard



Verification Opinion — summary {compliance of § 319 (a) of VVS}

Carbon Check (Pty) Ltd has performed second periodic verification of the CDM project Abohar Branch Canal Based Small Hydro Power Project in Punjab, India with UNFCCC reference number 4856. The verification team assigned by the DOE concludes that the CDM Project Activity as described in the registered PDD (version 06, dated 01/07/2011) /B4/ and monitoring report (02, 08/05/2014) /2/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 56 and 62 of CDM M & P, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification has been conducted in-line with the VVS requirements version 06.0.

Verification methodology and process

The Verification team confirms the contractual relationship signed on the 28th of March 2014 between the DOE, Carbon Check (Pty) Ltd and the Project Participant, (Abohar Branch Canal Based Small Hydro Power Project in Punjab, India). The team assigned to the verification meets the Carbon Check (Pty) Ltd internal procedures including the UNFCCC requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and Carbon Check procedures and requirements.

The verification has been performed as per the requirements described in the VVS version 06.0 and constitutes the review and completion of the following steps:

- Reviewing the registered PDD (version 06, dated 01/07/2011), including the monitoring plan and the corresponding validation report /B04/;
- Publication of the MR on the UNFCCC website (Version 01, dated 07/04/2014) on the UNFCCC website on 10/04/2014
- Desk review of the validation report, MR and other relevant documents including documents related to the projects activities in emission reductions
- Review of the applied monitoring methodology, AMS I.D, version 16 /B02/
- Review of any CMP and EB decisions, clarifications and guidance;
- On-site assessment 25-26/04/2014
- Resolution of CARs and CLs raised during verification
- Issuance of Verification Report

During the course of verification a total of 01 Corrective Action Request (CAR) and 01 Clarification Request (CL) were identified and successfully closed.

The project activity was correctly implemented according to selected monitoring methodology monitoring plan and the registered PDD /B04/. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the review and on site visit the verification team confirms that the project has resulted in the 26,358 tCO₂e emission reductions during the second monitoring period. Carbon Check as a DOE is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

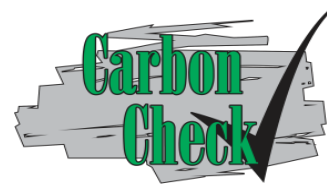
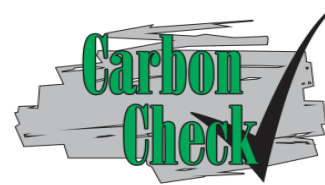


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1. INTRODUCTION

The Project Participant has commissioned the Carbon Check (Pty) Ltd. to perform an independent verification of the CDM Project Activity “Abohar Branch Canal Based Small Hydro Power Project in Punjab, India” in India (hereafter referred to as “project activity”). This report summarises the findings of the verification of the project, performed on the basis of paragraph 62 of the CDM M & P, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board. Verification is required for all registered CDM project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings and resolutions from the verification and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the second periodic independent review and *ex post* determination of both quantitative and qualitative information by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Abohar Branch Canal Based Small Hydro Power Project in Punjab, India” in India for the period 01/12/2012 to 31/03/2014.

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data, and used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner. Carbon Check objects is to perform a thorough, independent assessment of the registered project activities.

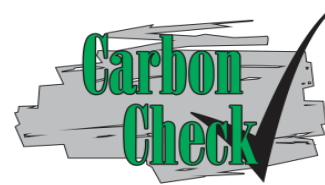
In particular the, monitoring plan, monitoring report and the project's compliance with relevant UNFCCC and host Party criteria are verified in order to confirm that the project has been implemented in accordance with the previously registered project design and conservative assumptions, as documented. And also, if the monitoring plan, is in compliance with the registered PDD and approved monitoring methodology.

1.2 Scope

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PDD /B04/
- To verify the implemented monitoring plan with the registered PDD and applied baseline and monitoring methodology /B02/.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.



The verification comprises a review of the monitoring report over the monitoring period from 01/12/2012 to 31/03/2014 and based on the registered PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet /04/, monitoring methodology and all related evidence provided by project participant.

On-site visit and stakeholders interviews are also performed as part of the verification process.

2. METHODOLOGY

The verification consists of the following four phases:

1. Completeness check and webhosting of the Monitoring report for public commenting;
2. Desk review of the validation report, monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents;
3. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary). The on-site assignment includes the following;
 - An assignment of implementation and operation of project activity with respect to registered PDD or approved revised PDD;
 - Review of information flows for generating, aggregating and reporting the monitoring parameters;
 - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the PDD;
 - Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
 - Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and PDD;
 - Review of assumptions made in calculating the emission reduction;
 - Implementation of QA/QC procedure in-line with the PDD and methodology requirement.
4. Resolution of outstanding issues and the issuance of the final Verification report and Certification statement.

The following sections outline each step in more detail.

2.1 Desk review (compliance of § 320 of VVS)

The following table outlines the documentation reviewed during the verification:

Ref no.	Reference Document
/1/	Webhosted Monitoring report, version 01, 07/04/2014
/2/	Monitoring report, version 02 ,08/05/2014
/3/	Emission reduction calculation spread sheet, version 01, 07/04/2014
/4/	Emission reduction calculation spread sheet, version 02,08/05/2014
/5/	Copies of proof for start of operation of the projects at Khanpur (1.1 MW) on 22/04/2010, Sudhar (1.4 MW) on 03/05/2010, Akhara (1.1 MW) on 25/03/2010, Gholian (0.8 MW) on 04/10/2009 and Channowal (0.9 MW) on 30/09/2009
/6/	Copies of monthly Joint Meter Reading (JMR) reports covering the monitoring period
/7/	Copies of monthly energy sales bills / invoices covering the monitoring period raised by PP
/8/	Calibration certificates for the electricity generation meters, auxiliary meters and

	main and check meters covering the period
/9/	Records of the gross electricity generation and auxiliary consumption at the five sites of the project activity (Khanpur, Sudhar, Akhara, Gholian and Channowal)
/10/	Technical specifications of the hydro turbines and generators of rated capacities of Khanpur 1.1 MWe (550 kW x 2), Sudhar 1.4 MWe (700 kW x 2), Akhara 1.1 MW (550 kW x 2), Gholian 0.8 MW (800 kW x 1) and Channowal 0.9 MWe (900 kW x 1)
/11/	Data capturing and QA/QC procedures, roles and responsibilities of the company personnel for the project activity.
/12/	Proof of statutory clearances for the project activity
/13/	Proof of training and competency of the project operators
/14/	Copy of Power Purchase Agreement for the project activity
/15/	Single line diagram showing the electricity generation, transmission, evacuation and metering system
/16/	Log of outages during the monitoring period

2.2 Background documents:

Ref no.	Reference Document
/B01/	1. Validation and Verification Standard (Version 06.0) 2. Project Standard (Version 06.0) 3. Project Cycle procedure (Version 06.0)
/B02/	Applied baseline and monitoring methodology, AMS.I.D (Version 16)
/B03/	1. Guideline: Completing the monitoring form 2. Template of MR available on UNFCCC website
/B04/	1. Registered PDD (Version 06, dated 01/07/2011) and corresponding validation report 2. 1 st Monitoring period MR and Verification Report available on the project page on UNFCCC web site
/B05/	Guideline on the application of Materiality in verifications (Version 01.0)
/B06/	www.cdm.unfccc.int

2.3 On-site visit and follow-up interviews with project stakeholders

An OSV was performed by the verification team of Carbon Check on 25-26/04/2014 and it aims to the following:

- An assessment of the implementation and operation of the registered project activity as per the registered PDD or any approved revised PDD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD;
- A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology and corresponding tool(s), where applicable;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;

- vii. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The project representatives and stakeholders interviewed:

	Name	Organization	Topic
/i/	Mr Girish Chand Sharma	APGPL	Project implementation, Data Management and reporting, Legal approvals for the project
/ii/	1. Jaswinder Singh / Section Head / APGPL 2. Vishnu Runthla / Accountant / APGPL 3. Harjot Singh / Technical Assistance / Khanpur 4. Kulwant Singh / Maintenance Engineer / Khanpur 5. Lakhvir Singh / Shift Supervisor / Khanpur 6. Vijay Guru / Shift Supervisor / Sudhana 7. Hardeep Singh / Plant Shift Supervisor / Akhara 8. Gurjit Singh / Technical Assistant / Akhara 9. Angrej Singh / Plant Shift Supervisor / Channowal 10. Harjinder Singh / Section Head / Channowal 11. Des Raj / Plant Shift Supervisor / Gholian 12. Gurjant Singh / Technical Assistant / Gholian	APGPL	- Technical specifications of project equipment - Monitoring systems and calibration// Electricity Monitoring /measuring systems - Monitoring and reporting procedures - Emergency procedures - QA/QC procedures - Training activities - Record keeping – daily production report, breakdown / maintenance log

2.4 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified/corrective action done prior to final DOE's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.

The verification protocol serves the following purposes:

- It organises in a table form, details and clarifies the requirements, which CDM project is expected to meet CDM requirements;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The verification protocol consists of two tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 (i.e. tables of findings) and preliminary and final opinion of the DOE on every particular requirement listed in table 1.

Verification Protocol Table 1: Requirement checklist				
Checklist question	Verification Team Comment	Reference /MoV	Findings, comments, references, data sources / Draft Conclusion	Final Conclusion
The checklist items in Table 1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.	The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the Verification team and how the assessment was carried out. The reporting requirements of the VVS and Project Standard shall be covered in this section.	Gives reference to the information source on which the assessment is based on	Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR is raised (see below). The assessment refers to the draft verification stage.	In case a corrective action or a clarification request the final assessment at the final verification stage is given.

The findings of verification process are summarized in the tables below.

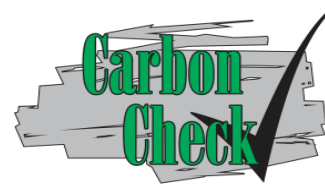
Finding (reference section of table 1)			
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding (DOE)			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)			
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.			
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Outstanding finding (not closed) <input type="checkbox"/> The finding is closed		

In Table 2 FAR, shall reflect the forward actions initiated by the verification team if the monitoring and reporting require attention and/or adjustment for the next verification period. The completed verification protocol for this project is enclosed in Appendix A to this report.

Findings during the verification can be interpreted as a non-compliance with CDM criteria or a risk to the compliance.

Corrective action requests (CARs) are raised, in case:

- (a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;



- (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- (d) Issues identified in a FAR during validation/previous verification(s) that are not being resolved by the project participant(s) to be verified during current verification.

Requests for clarification (CLs) are 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 verification to highlight issues related to project implementation/monitoring that require review during the subsequent verification of the project activity. FARs shall not relate to the CDM requirements for issuance.

2.5 Internal quality control

The final verification report has passed a technical review before being submitted to the project participant and UNFCCC Executive Board. The technical review was performed by a technical reviewer qualified in accordance with CCL's qualification scheme for CDM validation and verification.

2.6 Verification Team (compliance of § 284 b of VVS)

Carbon Check has appointed a competent team as per the Accreditation Standard and Carbon Check internal procedures, the team is outlined below:

Verification Team			Type of Involvement						
Full name	Location	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Amit Anand	RSA	1.2, 13.1	X	X	X	X	X		
Sanjay Kumar Agarwalla	India	1.2		X	X				
Vikash Kumar Singh	RSA	1.2, 3.1, 13.1							X
Anubhav Dimri	RSA	1.2, 3.1							X

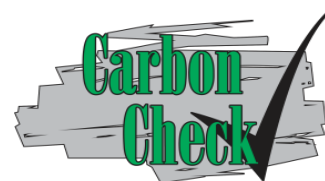
3. VERIFICATION FINDINGS (compliance of § 319 c of VVS)

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of verification are documented in detail in the verification protocol in Appendix A.

3.1 Project implementation

The implementation of the project activity (compliance of § 319 d (i) of VVS)

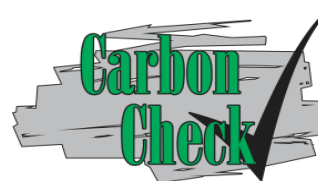
Project Participants:	Abohar Power Generation Private Limited
Title of project activity:	Abohar Branch Canal Based Small Hydro Power Project in Punjab, India
UNFCCC registration No:	4856
Applied Baseline and	AMS I.D, version 16



monitoring methodology:					
Project Scale:	Small scale				
Location of the project activity:	The project consists of five sites whose locations are as follows:				
	Site	Town	District	State	GPS co-ordinates
	Khanpur	Khanpur	Ludhiana	Punjab	30.7859 ⁰ N 75.9073 ⁰ E
	Sudhar	Sudhar	Ludhiana	Punjab	30.7675 ⁰ N 75.6469 E
	Akhara	Akhara	Ludhiana	Punjab	30.7612 ⁰ N 75.4931 ⁰ E
	Gholian	Gholian	Moga	Punjab	30.6008 ⁰ N 75.2147 ⁰ E
	Channowal	Channowal	Moga	Punjab	30.6439 ⁰ N 75.1055 ⁰ E
Project's crediting period:	28/12/2011 to 27/12/2021				
Reported monitoring Period verified in this verification:	01/12/2012 to 31/03/2014				

As part of the site visit the verification team was able to confirm that the project implementation is in accordance with the project description contained in the registered PDD. The verification took cognizance of § 236 & 237 of CDM Project Standard and § 260 (a) and § 261 of VVS /B01/.

Project physical features (technology, project equipment, monitoring and metering equipment)	<p>The project comprises five mini hydroelectric projects of total installed capacity 5.3 MW located at Khanpur, Sudhar, Akhara, Gholian and Channowal, villages on the Abohar Branch Canal in the state of Punjab in India. The individual capacities of the projects are 1.10 MW (550 kW X 2) for Khanpur, 1.40 MW (700 kW X 2) for Sudhar, 1.10 MW (550 kW X 2) for Akhara, 0.8 MW (800 kW X 1) for Gholian and 0.9 MW (900 kW X 1) for Channowal /10/ and the electricity generated is exported to Punjab State Electricity Board (PSEB) through the NEWNE regional grid of India /6/ /14/.</p> <p>All these projects are low head canal drop based mini hydroelectric projects and are operating successfully since commissioning.</p> <p>The details of the project activity such as generator, turbine, transformer and its technical specification, and monitoring arrangement were compared with the project description given in the Monitoring report. The team confirms that with reference to section A.1 of the published MR version 01 dated 07/04/2014, the MR provides general information of the project in consistent with the registered PDD.</p> <p>Monitoring equipment for the purpose of measurement of electricity exported to the grid is in place as per the registered PDD.</p> <p>Verification team confirms that the monitoring equipment utilized is representative of good monitoring practice, as verified by the accuracy of the meter confirmed by reviewing the provided</p>
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Any Project Design Change been sought and approved by EB for the project? <small>{compliance of § 284 (f) of VVS}</small>	certificate of meter accuracy /8/. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA.
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The verified timeline of the project's implementation is as follow:

Milestone of the project activity	Timeline	Assessment by the verification team
Starting date of operation:	Commissioning dates of the 5 mini hydroelectric projects is as follows: Khanpur on 22/04/2010; Sudhar on 03/05/2010; Akhara on 25/03/2010; Gholian on 04/10/2009 and Channowal on 30/09/2009.	Commissioning dates of the hydro turbines as stated in the MR was verified from the plant log books and found to be correct /5/. This was also confirmed from the verification report of the previous verification.
Registration of the project activity	28/12/2011	Verified from UNFCCC website /B06/
Crediting period		
1st monitoring period	28/12/2011 to 30/11/2012	Verified from UNFCCC website /B06/
2nd monitoring period	01/12/2012 to 31/03/2014	Current monitoring period being verified

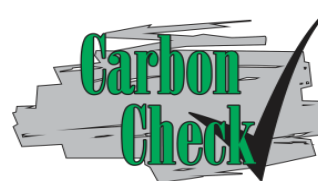
The project activity was implemented and equipment installed as described in the registered PDD /B04/;

The project activity has been implemented and operated in accordance with the registered PDD and the methodology.

MR History	Version 01	Date 31/03/2014
	Version 02	Date 08/05/2014

Verification Team summarizes *major* changes between webhosted Monitoring Report and final version of Monitoring Report for submission as follows:

Subject	Webhosted Monitoring Report (MR) /01/	Verified Monitoring Report /02/																								
Consistency																										
MR (project title / participants involved/ project location / reference numbers / report date and version etc.)	<ul style="list-style-type: none">● Project Title: Abohar Branch Canal Based Small Hydro Project in Punjab, India● Project participants: Abohar Power Generation Private Limited <p>Project Location:</p> <table><tr><th>Site</th><th>Town</th><th>District</th><th>State</th></tr><tr><td>Khanpur</td><td>Khanpur</td><td>Ludhiana</td><td>Punjab</td></tr><tr><td>Sudhar</td><td>Sudhar</td><td>Ludhiana</td><td>Punjab</td></tr><tr><td>Akhara</td><td>Akhara</td><td>Ludhiana</td><td>Punjab</td></tr><tr><td>Gholian</td><td>Gholian</td><td>Moga</td><td>Punjab</td></tr><tr><td>Channowal</td><td>Channowal</td><td>Moga</td><td>Punjab</td></tr></table>	Site	Town	District	State	Khanpur	Khanpur	Ludhiana	Punjab	Sudhar	Sudhar	Ludhiana	Punjab	Akhara	Akhara	Ludhiana	Punjab	Gholian	Gholian	Moga	Punjab	Channowal	Channowal	Moga	Punjab	Version and date of the monitoring report changed.
	Site	Town	District	State																						
	Khanpur	Khanpur	Ludhiana	Punjab																						
	Sudhar	Sudhar	Ludhiana	Punjab																						
	Akhara	Akhara	Ludhiana	Punjab																						
	Gholian	Gholian	Moga	Punjab																						
	Channowal	Channowal	Moga	Punjab																						
	UNFCCC Reference Number: 4856																									



	<ul style="list-style-type: none"> • Report date: 07/04/2014 • Version: 01 	
CER calculations (amount of emission reduction)	26,358 tCO ₂ (for the entire monitoring period)	26,358 tCO ₂ (for the entire monitoring period)
Monitoring (period dates and period)	<ul style="list-style-type: none"> • Monitoring Period: 01/12/2012 – 31/03/2014 • Monitoring Period Number: 02 	No Change.
Crediting period (type / start date)	Type: Fixed; from 28/12/2011 - 27/12/2021	No change.

Carbon Check's verification team considers the project description of the project contained in the registered PDD to be complete and accurate. The PDD complies with the relevant methodology, tools, forms and guidance at the time of PDD submission for registration.

3.2 The actual operation of the CDM project activity (compliance of § 319 d (i) of VVS)

The actual operation of the project activity during the reported monitoring period is verified as per the requirement of §263 (b) and (c) of VVS /B01/. During the verification, by the observation of equipment, interviews with relevant staff and the checking of technical specifications of main components, it was confirmed that the project activity has been implemented as described in the registered PDD.

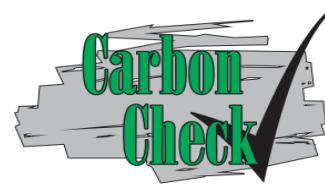
The project is operational. The five sites of the project activity were commissioned as follows: Khanpur on 22/04/2010; Sudhar on 03/05/2010; Akhara on 25/03/2010; Gholian on 04/10/2009 and Channowal on 30/09/2009. The commissioning dates were confirmed from the plant records /05/. The outages were observed and logged during this monitoring period /16/ and the reason for these outages was mainly for maintenance purpose / grid unavailability /unavailability of sufficient water in the canal which is also verified during site visit /16/.

The name plates of the Turbine generators, Main Meter, Check Meter, site layout plan were verified and confirmed during the on-site visit. The verification team confirms all the physical features of the CDM project activity in the registered PDD are in place.

No change from the registered PDD of physical features which may impact the emission reduction of the project activity has been identified.

Verification team confirms that there is a clear audit trail of all GHG data monitored and collected during the monitoring period and all necessary evidence is transparently presented. The Monitoring report describes the monitoring system, monitoring procedures, data collection and reporting, responsibilities of relevant staff/departments, emergency scheme, calibrations that were implemented and QA/QC procedures including data cross checking.

The export and import electricity for each of the five sub projects is monitored by joint meter readings by the bidirectional type energy meters installed at the grid interconnection point at the respective sites every month and recorded /6/. Based on the data recorded net electricity supplied to the grid is calculated as the difference of export and import electricity and monthly bill / invoice are raised by the project proponent to PSEB (Punjab State Electricity Board) for payments against net electricity supply to grid /7/. The same is considered as net electricity generated (EG_y) by the project activity, as mentioned in the monthly bills / invoice for calculation of GHG emission reductions by the project activity. Also as described in the QA/QC procedures of the registered PDD in section B.7.1 and also the monitoring methodology, the PP has monitored and recorded the gross generation and auxiliary consumption data /9/.



During the site visit, through interviews with the relevant staff and the document review, the management system was found to be in place and the implementation of QA/QC procedures could be confirmed.

Referring to §263 (c) of VVS, the verification team has compared information (data and variables) provided in the monitoring report that is different from that stated in the PDD and that may cause an increase in estimates of the emission reductions in the monitoring period or is highly likely to increase the estimates of emission reductions. This assessment also covers the requirement put forth under §240(c) of PS /B01/ i.e. the assessment of events and situations that occurred during the monitoring period which may impact the applicability of the applied methodology /B02/. This assessment reveals that none of the events impacts applicability of the applied methodology during the reported monitoring period and also increases the ERs from the project activity or may likely to increase ER during subsequent verifications.

Based on the review of the QA/QC procedures /11/, Power Purchase Agreement (PPA) /14/, certificate of meter accuracy /08/ and Clearances from the Pollution Control Board /12/, the verification team confirms that the project's operation is as per the applicable rules and regulations of the host country.

In summary, the monitoring period is reasonable and the operation of the project activity is in accordance with the registered PDD. The verification took cognizance of § 237 and 238 of CDM Project Standard and § 252 b (i), 260 (a), 261 and 263 (b) and (c) of VVS version 06.

3.3 Compliance of the monitoring plan with the monitoring methodology including applicable tool(s) (compliance of § 319 d (ii) of VVS)

Any Revision in Monitoring plan is sought and approved by EB for the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	The monitoring plan is in accordance with the approved methodology AMS 1.D, Version 16 /B02/.
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The verification team determined against all the information provided in MR, whether in-line with the applied monitoring methodology.

Verification Requirements	Criteria fulfilled	Assessment and reporting by the verification team
Any Deviation been sought and approved by EB for the project.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA
Is complete set of data for the specified monitoring period is available	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Complete set of data for this monitoring period is available. During the verification, the verification team reviewed the hourly electricity data logs /9/, monthly Joint Meter Readings /6/ jointly signed by the PP and the Electricity Board officials for the electricity supplied to the grid. The invoices of electricity sale /7/ were used to cross check as a QA/QC mechanism.</p> <p>The verification team confirmed that the data for calculation of emission reduction in the Monitoring report /02/ and Emission reduction spreadsheet /04/ is correctly accounted and fully substantiated.</p>

Verification Requirements	Criteria fulfilled	Assessment and reporting by the verification team
Is the required information provided in the monitoring report has been cross-checked with other sources (ex – plant logbooks, inventories, purchase records, laboratory analysis)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>The verification team confirmed the monitored data with the following:</p> <ol style="list-style-type: none"> 1. Daily plant log Book /9/ 2. Hourly generation and auxiliary consumption data log sheets /9/ 3. Joint meter readings (JMRs) /6/ 4. Invoices raised for the sale of electricity /7/ <p>All the above documents are referenced in section 2.1 of this report above.</p>
Is the calculation of baseline emissions and project activity emissions and leakage been in accordance with the formulae and methods described in monitoring plan and the applied methodology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Verification team based on review of Information provided in the monitoring report /02/, emission reduction spread sheet /04/ and the registered PDD /B04/ confirms that the calculation of baseline emissions and project activity emissions has been in accordance with the formulae and methods described in monitoring plan and the applied methodology.</p> <p>The calculation of the emission reductions as per the applied methodology, AMS-I.D, version 16 and applied for the project activity are as follows:</p> <p><u>Baseline emissions:</u></p> <p>The baseline emissions are calculated by multiplying the electricity supplied by the project activity to the grid during with the grid emission factor.</p> $BE_y = EG_y * EF_{grid,co2,y}$ <p>Where, BE_y = Baseline emissions for the year y EG_y = Electricity supplied by the project activity to the grid (MWh) in the year y $EF_{grid,co2,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y (tCO₂/MWh)</p> <p><u>Project emissions:</u></p> <p>As the project activity is a run-of-river renewable energy plant, as per the monitoring methodology and the registered PDD, no project emissions are considered for the project activity.</p>

Verification Requirements	Criteria fulfilled	Assessment and reporting by the verification team
		$PE_y = 0$ <u>Leakage:</u> As the energy generating equipment is not transferred from another activity, as per the monitoring methodology and the registered PDD, no leakage emissions are considered for the project activity. $LE_y = 0$ Hence emission reductions for the project activity are calculated as follows: $ER_y = BE_y - PE_y - LE_y$
Is all assumptions used for emission calculation have been justified	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	No assumptions are used in the calculation of emission reductions.
Is appropriate emission factors, IPCC default values and other reference values have been correctly applied	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The emission factor for the electricity supplied to the grid has been determined ex-ante in the registered PDD /B04/ and will not change during the entire first crediting period. Hence no uncertainty involved with the stated figure and the same stands justified.
Does the monitoring methodology provides any provision of verification for parameters other than monitoring of GHG data and shall be specific to the applicability criteria of applied methodology.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA

The verification team is able to confirm that the monitoring plan contained in the PDD /B04/ is in accordance with the approved methodology applied by the project activity, i.e. AMS.I.D (version 16) /B02/. As it was verified through the document review and the site visit, all the parameters mentioned in the monitoring plan are monitored according the frequency indicated by the monitoring methodology. The monitoring report was found to be consistent with the applicable methodology and tools.

The verification took cognizance of § 264 to 267 and 260 (d) 272, 278, and 279 of VVS (Version 06.0) /B01/.

3.4 Compliance of the Actual monitoring with monitoring plan in the PDD (compliance of § 319 d (ii) of VVS)

Any Revision in Monitoring plan is sought and approved by EB for the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA
Does the monitoring	<input checked="" type="checkbox"/> Yes	Monitoring report /02/ does provide a line diagram

report provide line diagram showing all relevant monitoring points?	<input type="checkbox"/> No	showing all monitoring equipment.
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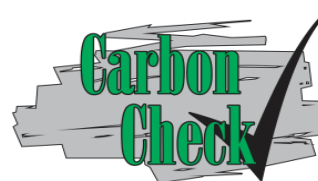
The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD of 01/07/2011. The assessments of compliance of monitoring procedure for the individual monitoring parameters are assessed in seriatim in section 3.5 of this report.

3.5 Monitored parameters (compliance of § 319 e of VVS)

EX-Post Parameters:

Monitoring Parameter Requirement	Assessment/ Observation by the DOE					
Data / Parameter: (as in monitoring plan of PDD):	Electricity exported by project activity in year y “EG _{export,y} ”					
Unit:	MWh					
Reported value (ex-post):	Khanpur	Sudhar	Akhara	Gholian	Channowa I	Total
	7,813.1882	7,566.3938	6,692.7190	5,323.7860	5,481.2548	32,877.3418
Measuring frequency/Time Interval:	Continuous monitoring					
Reporting frequency:	Monthly					
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes					
Details of monitoring equipment:	Bi directional Electronic Tri-vector meters installed at the grid interconnection points for each of the five sites separately to measure the amount of electricity supplied to the grid by the project of L&T make and accuracy class 0.2.					
	Site	Main meter		Check meter		
	Khanpur	Sr. No. - 11069548; Period in Service: 01/12/2012 to 31/03/2014		Sr. No. - 11069549; Period in Service: 01/12/2012 to 31/03/2014		
	Sudhar	Sr. No. - 11071246 ; Period in Service: 01/12/2012 to 31/03/2014		Sr. No. - 11071247 ; Period in Service: 01/12/2012 to 31/03/2014		
	Akhara	Sr. No. - 11071253 ; Period in Service: 01/12/2012 to 31/03/2014		Sr. No. - 11071254 ; Period in Service: 01/12/2012 to 31/03/2014		
	Gholian	Sr. No. - 11071244; Period in Service: 01/12/2012 to 31/03/2014		Sr. No. - 11071259 ; Period in Service: 01/12/2012 to 31/03/2014		
	Channowal	Sr. No. - 11071251 ; Period in Service: 01/12/2012 to		Sr. No. - 11071261 ; Period in Service:		

		31/03/2014	01/12/2012 to 31/03/2014																		
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes accuracy of the meters is as stated in the PDD																				
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Once in two years which is in line with the registered monitoring plan																				
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Once in two years which is in line with the registered monitoring plan																				
Company performing the calibration(internal or external calibration):	Punjab State Electricity Board Limited (PSEBL) which is a Government agency and the testing meters are traceable to national standards. PSEBL is statutory body under the Indian Electricity Act 1948 and owned by the Government of Punjab and hence deemed to be competent.																				
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, the calibration confirms proper functioning of monitoring equipment.																				
Is (are) calibration(s) valid for the whole reporting period?	Yes. Calibration dates along with its validity are given in the below table:																				
	<table><tr><th>Site</th><th>Main meter</th><th>Check meter</th></tr><tr><td>Khanpur</td><td>Sr. No. - 11069548; 27/06/2012 (valid till 26/06/2014)</td><td>Sr. No. - 11069549; 27/06/2012 (valid till 26/06/2014)</td></tr><tr><td>Sudhar</td><td>Sr. No. - 11071246; 22/06/2012 (valid till 21/06/2014)</td><td>Sr. No. - 11071247; 22/06/2012 (valid till 21/06/2014)</td></tr><tr><td>Akhara</td><td>Sr. No. - 11071253; 22/06/2012 (valid till 21/06/2014)</td><td>Sr. No. - 11071254; 22/06/2012 (valid till 21/06/2014)</td></tr><tr><td>Gholian</td><td>Sr. No. - 11071244; 19/06/2012 (valid till 18/06/2014)</td><td>Sr. No. - 11071259; 19/06/2012 (valid till 18/06/2014)</td></tr><tr><td>Channowal</td><td>Sr. No. - 11071251; 19/06/2012 (valid till</td><td>Sr. No. - 11071261; 19/06/2012 (valid till</td></tr></table>	Site	Main meter	Check meter	Khanpur	Sr. No. - 11069548; 27/06/2012 (valid till 26/06/2014)	Sr. No. - 11069549; 27/06/2012 (valid till 26/06/2014)	Sudhar	Sr. No. - 11071246; 22/06/2012 (valid till 21/06/2014)	Sr. No. - 11071247; 22/06/2012 (valid till 21/06/2014)	Akhara	Sr. No. - 11071253; 22/06/2012 (valid till 21/06/2014)	Sr. No. - 11071254; 22/06/2012 (valid till 21/06/2014)	Gholian	Sr. No. - 11071244; 19/06/2012 (valid till 18/06/2014)	Sr. No. - 11071259; 19/06/2012 (valid till 18/06/2014)	Channowal	Sr. No. - 11071251; 19/06/2012 (valid till	Sr. No. - 11071261; 19/06/2012 (valid till		
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	18/06/2014)	18/06/2014)	
If applicable, has the reported data been cross-checked with other available data?	The data is cross checked with the invoices raised /7/		
How were the values in the monitoring report verified?	Joint Meter Reading records (JMRs) /6/		
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>The necessary QA/QC for this parameter is in place.</p> <p>Assessment of data/information flow has been done in row above.</p>		
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Complete set of data is available for this parameter. Hence, this is not applicable.		

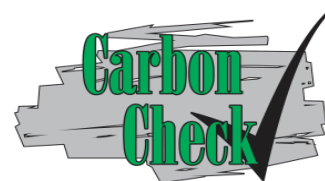
Monitoring Parameter Requirement	Assessment/ Observation by the DOE					
Data / Parameter: (as in monitoring plan of PDD):	Electricity imported by the project activity in year y "EG _{import,y} "					
Unit:	MWh					
Reported value (ex-post):	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total
	7.7932	8.7916	12.5356	11.3248	14.7796	55.2248
Measuring frequency/Time Interval:	Continuous monitoring					
Reporting frequency:	Monthly					
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes					
Details of monitoring	Bi directional Electronic Tri-vector meters installed at the grid					

equipment:	interconnection points for each of the five sites separately to measure the amount of electricity supplied to the grid by the project of L&T make and accuracy class 0.2.																		
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Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter:	Net electricity exported to the Grid /Licensee in year y

(as in monitoring plan of PDD):	“EG _{Net,y} ”						
Unit:	MWh						
Reported value (ex-post):	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	
	7,805.3950	7,557.6022	6,680.1834	5,312.4612	5,466.4752	32,822.1170	
Measuring frequency/Time Interval:	The data is calculated as the difference of measured export and import energy						
Reporting frequency:	Monthly						
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes						
Details of monitoring equipment:	Not Applicable since the data is calculated						
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA						
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA						
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA						
Company performing the calibration(internal or external calibration):	NA						
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA						
Is (are) calibration(s) valid for the whole reporting period?	NA						



If applicable, has the reported data been cross-checked with other available data?	The data is cross checked with the invoices raised /7/
How were the values in the monitoring report verified?	Joint Meter Reading records (JMRs) /6/
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The necessary QA/QC for this parameter is in place. Assessment of data/information flow has been done in row above.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Complete set of data is available for this parameter. Hence, this is not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the DOE						
Data / Parameter: (as in monitoring plan of PDD):	Gross electricity generation by the project activity in year y “EG _{Gross,y} ”						
Unit:	MWh						
Reported value (ex- post):	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	
	8,100.682	7,880.258	6,901.068	5,463.494	5,690.024	34,035.526	
Measuring frequency/Time Interval:	Continuous monitoring						
Reporting frequency:	Hourly						
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes						
Details of monitoring equipment:	Energy meters; Make – Elecon; Accuracy class - 0.5.						
	Site	Unit 1			Unit 2		

	Khanpur	Sr. No. - 10440TM0309; Period in Service: 01/12/2012 to 31/03/2014	Sr. No. - 1204TM0309; Period in Service: 01/12/2012 to 31/03/2014
	Sudhar	Sr. No. - 34122TM0309; Period in Service: 01/12/2012 to 31/03/2014	Sr. No. - 1214TM0309; Period in Service: 01/12/2012 to 31/03/2014
	Akhara	Sr. No. - 8221TM0309; Period in Service: 01/12/2012 to 31/03/2014	Sr. No. - 34125TM0309; Period in Service: 01/12/2012 to 31/03/2014
	Gholian	Sr. No. - 1210TM0309; Period in Service: 01/12/2012 to 31/03/2014	
	Channowal	Sr. No. - 1215TM0309; Period in Service: 01/12/2012 to 31/03/2014	
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes accuracy of the meters is as stated in the PDD		
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Once in a year which is in line with the registered monitoring plan		
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Once in a year which is in line with the registered monitoring plan		
Company performing the calibration(internal or external calibration):	The generation meters were calibrated by Neno Technical Services / Advance Control System who are accredited and registered by National Accreditation Board for Testing and Calibration Laboratories (NABL), Govt. of India, to do the calibration of energy meters and hence deemed to be competent.		
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, the calibration confirms proper functioning of monitoring equipment.		

Is (are) calibration(s) valid for the whole reporting period?	Yes. Calibration dates along with its validity are given in the below table:		
	Site	Unit 1	Unit 2
	Khanpur	Sr. No. - 10440TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Sr. No. - 1204TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)
	Sudhar	Sr. No. - 34122TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Sr. No. - 1214TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)
	Akhara	Sr. No. - 8221TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Sr. No. - 34125TM0309; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)
	Gholian	Sr. No. - 1210TM0309; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014)	
	Channowal	Sr. No. - 1215TM0309; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014)	
	However, CL 01 was raised as the calibration dates for all the sites stated as 07/03/2012 were found to be incorrect.		
	The CL was closed after revising the MR with correct dates of calibration of the respective meters.		
If applicable, has the reported data been cross-checked with other available data?	The data is cross checked with the daily plant log books and Hourly generation and auxiliary consumption data log sheets		
How were the values in the monitoring report verified?	Plant records /9/		
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in	The necessary QA/QC for this parameter is in place.		
	Assessment of data/information flow has been done in row above.		

place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Complete set of data is available for this parameter. Hence, this is not applicable.

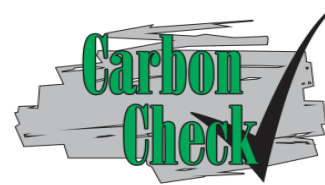
Monitoring Parameter Requirement	Assessment/ Observation by the DOE						
Data / Parameter: (as in monitoring plan of PDD):	Auxiliary electricity consumption in year y “ EG_{Aux,y} ”						
Unit:	MWh						
Reported value (ex-post):	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	
	63.720	66.161	62.058	49.600	55.503	297.042	
Measuring frequency/Time Interval:	Continuous monitoring						
Reporting frequency:	Hourly						
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes						
Details of monitoring equipment:	Energy meters; Make – Rishabh; Accuracy class - 0.5.						
	Site						
	Khanpur	Sr. No. - 8/12/6441; Period in Service: 01/12/2012 to 31/03/2014					
	Sudhar	Sr. No. - 8/12/6440; Period in Service: 01/12/2012 to 31/03/2014					
	Akhara	Sr. No. - 8/12/6433; Period in Service: 01/12/2012 to 31/03/2014					
	Gholian	Sr. No. - 8/12/6439; Period in Service: 01/12/2012 to 31/03/2014					
	Channowal	Sr. No. - 8/12/6442; Period in Service: 01/12/2012 to 31/03/2014					
Is accuracy of the monitoring equipment as stated in the PDD?	Yes accuracy of the meters is as stated in the PDD						

If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?											
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Once in a year which is in line with the registered monitoring plan										
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Once in a year which is in line with the registered monitoring plan										
Company performing the calibration(internal or external calibration):	The auxiliary meters were calibrated by Neno Technical Services / Advance Control System who are accredited and registered by National Accreditation Board for Testing and Calibration Laboratories (NABL), Govt. of India, to do the calibration of energy meters and hence deemed to be competent.										
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, the calibration confirms proper functioning of monitoring equipment.										
Is (are) calibration(s) valid for the whole reporting period?	<p>Yes. Calibration dates along with its validity are given in the below table:</p> <table border="1"> <thead> <tr> <th>Site</th><th>Unit 1</th></tr> </thead> <tbody> <tr> <td>Khanpur</td><td> Sr. No. - 8/12/6441; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014) </td></tr> <tr> <td>Sudhar</td><td> Sr. No. - 8/12/6440; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014) </td></tr> <tr> <td>Akhara</td><td> Sr. No. - 8/12/6433; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014) </td></tr> <tr> <td>Gholian</td><td> Sr. No. - 8/12/6439; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014) </td></tr> </tbody> </table>	Site	Unit 1	Khanpur	Sr. No. - 8/12/6441; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Sudhar	Sr. No. - 8/12/6440; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Akhara	Sr. No. - 8/12/6433; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)	Gholian	Sr. No. - 8/12/6439; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014)
Site	Unit 1										
Khanpur	Sr. No. - 8/12/6441; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)										
Sudhar	Sr. No. - 8/12/6440; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)										
Akhara	Sr. No. - 8/12/6433; 03/09/2012 (valid till 02/09/2013) 01/03/2013 (valid till 28/02/2014) 30/08/2013 (valid till 29/08/2014)										
Gholian	Sr. No. - 8/12/6439; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014)										

	Channowal	Sr. No. - 8/12/6442; 04/09/2012 (valid till 03/09/2013) 02/03/2013 (valid till 01/03/2014) 31/08/2013 (valid till 30/08/2014)
	<p>However, CL 01 was raised as the calibration dates for Khanpur, Sudhar and Akhara were stated as 26/02/2014 and for Gholian and Channowal as 27/02/2014 and 07/03/2012 for all the sites were found to be incorrect.</p> <p>The CL was closed after revising the MR with correct dates of calibration of the respective meters.</p>	
If applicable, has the reported data been cross-checked with other available data?	The data is cross checked with the daily plant log books and Hourly generation and auxiliary consumption data log sheets	
How were the values in the monitoring report verified?	Plant records /9/	
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>The necessary QA/QC for this parameter is in place.</p> <p>Assessment of data/information flow has been done in row above.</p>	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Complete set of data is available for this parameter. Hence, this is not applicable.	

EX-Ante Parameters:

Data / Parameter	EF _{grid} / EF _{CM}
Description	Grid emission factor
Value used:	0.8031 tCO ₂ /MWh
Purpose of data	Calculation of baseline emissions
Source and Verification of the source	The data was sourced from CEA data base, version 4.0 and it was verified from the registered PDD



In summary, the verification team confirms that all the ex-ante and ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodology. The verification took cognizance of § 197 and 198 of CDM Project Standard and § 260, 268 to 281 of VVS version 06.

3.6 Monitoring responsibility

The monitoring report and CDM documents clearly describe the responsibilities for monitoring and this has been verified by the verification team during the on-site visit through interviews.

As described in the monitoring report, the project owner has made a CDM team and the responsibilities for operational personnel, technical and support team have been well defined. They are assigned the responsibility to measure, record and store the project activity data.

The Energy exported and Energy imported at each of the sites is measured and is used to calculate the Net saleable energy. Monthly joint meter readings are taken at interconnection point at each of the five sites and certified by representatives of Abohar Power Generation Private Limited (APGPL) and Punjab State Electricity Board (PSEB) /06/. The joint meter readings are used to raise invoice for sale of net energy to PSEB /07/. The energy generated and the auxiliary electricity consumption is measured and recorded on hourly basis which are summed to daily readings and monthly readings /09/.

3.6.1 Accuracy of equipment

The monitoring equipments have been installed in the project activity according to registered monitoring plan. Details of the energy meters used in the project activity have been provided in section 3.5 above.

Verification team confirms that there is no change of monitoring equipment for any of the parameter and the same has been confirmed by reviewing the details of monitoring equipment available on UNFCCC website and the on-site visit physical inspection (by comparing the monitoring equipment number during the on-site visit).

In summary, the verification team was able to verify that the accuracy the monitoring equipments were set according to the registered monitoring plan and relevant technical specification. Furthermore, the verification team confirms all calibration procedures were carried at the frequency as specified by the methodology, monitoring plan of the registered PDD and aligned with the manufacturer specifications. Therefore, accuracy of monitoring equipments is assured. The verification took cognizance of § 244 of CDM Project Standard and § 272 of VVS version 06.

3.7 Deviation from and/or Revision of the registered monitoring plan

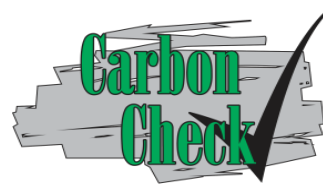
There is no deviation and/or revision of the registered monitoring plan.

3.8 Assessment of data and calculation of greenhouse gas emission reductions (compliance of § 319 d (iii) and 319 i of VVS)

In line with the requirement of § 319 d (iii) and 319 i of VVS, the verification team has reviewed the Monitoring report /02/ and ER spread sheet /04/ to check the arithmetic calculation of the Baseline emissions. The equation used for the calculation of Baseline emissions were compared with those provided in the registered PDD /B04/.

3.8.1.1 Baseline emissions

According to the registered PDD and the Monitoring report, the baseline emissions for the project activity for the period 01/12/2012 to 31/03/2014 have been calculated as,



Baseline emission=Net saleable energy X Emission factor of the grid

$$BE_y = EG_y * EF_{grid,CO_2,y}$$

Net saleable Energy (MWh) by the project = Energy Exported (MWh) – Energy Imported (MWh) = 32877.3418 – 55.2248 = 32822.1170 MWh.

The team confirms that the calculation of Net saleable energy for this monitoring period is accurate.

Emission factor of the grid = 0.8031 tCO₂/MWh, as calculated ex-ante in the registered PDD and will be fixed during the crediting period and is thus applicable for this monitoring period.

Hence baseline emissions (BE_y) = (32822.1170 X 0.8031) = 26,358 tCO₂e (rounded down)

3.8.1.2 Project emissions

As the project activity is a run-of-river renewable energy plant, as per the monitoring methodology and the registered PDD, no project emissions are considered for the project activity.

$$PE_y = 0$$

3.8.1.3 Leakage emissions

As the energy generating equipment is not transferred from another activity, as per the monitoring methodology and the registered PDD, no leakage emissions are considered for the project activity.

$$LE_y = 0$$

Hence emission reductions for the project activity are calculated as follows:

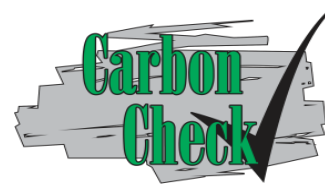
3.8.1.4 Emission reductions

$$\begin{aligned} ER_y &= BE_y - PE_y - LE_y \\ &= BE_y \\ &= 26,358 \text{ tCO}_2 \end{aligned}$$

3.8.1.5 Assessment on consideration of Materiality in verification

During the course of verification, the verification team has taken into cognizance the relevant sections of “Guidelines on the application of materiality in verifications” (version 01.0) /B05/. The risk assessment has been undertaken by the verification team by means of onsite physical inspection, stakeholder’s interview and document review to all the raw data and cross-check data. Also all the meters involved are sealed and duly calibrated. No sampling plan is required in the monitoring plan and the verification team is able to confirm that all parameters are properly monitored by the electricity meters automatically, the accuracy and the calibration of the meters is assured, all the data reported in the ER calculation sheet /04/ have been completely verified against the JMRs and crosschecked with the invoices, the data management system and QA/QC process are carried out appropriately. Thus no material errors, omissions or misstatements were detected by the verification team during the risk assessment.

The verification team confirms that:



- No sampling approach is required in the monitoring plan, and the verification were not revised to take into account the need for further audit procedures due to the nature/type of errors, omissions or misstatements detected.
- No material errors, omissions or misstatements were detected by the verification team during the risk assessment.
- In the verification/certification opinion in Appendix A, it is stated that the claimed emission reductions or removals are free from material errors, omissions or misstatements, with a reasonable level of assurance.

3.9 Assessment of actual emission reductions with the estimate emission reductions in PDD

Estimated Emission Reduction as per Registered PDD:	31,326 tCO ₂ (calculated for the monitoring period from 01/12/2012 to 31/03/2014, i.e. 486 days)
Actual Emission Reduction for the Monitoring Period	26,358 tCO ₂
Has any increase of CERs occurred?	No
Reason for Increase of CERs	Not applicable as there is no increase in the emission reduction from the approved revised PDD.

In summary, verification team confirms that actual emission reductions are lower than the estimate of the registered PDD for the current monitoring period. The verification took cognizance of § 210 & 202 of CDM Project Standard and § 263 (c) of VVS version 06.

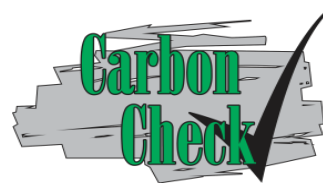
3.10 Issues remaining from the previous verification period or during validation (compliance of § 319 h of VVS)

This is the 2nd periodic verification of the project activity. There are no remaining issues either from the validation and the 1st periodic verification. The verification took cognizance of § 255 (d) of VVS version 06.

3.11 Quality and Management System Assurance

The verification team confirms that the management system of the CDM project is in place with the responsibilities properly identified. The verification team has reviewed the data capturing and QA/QC procedures including roles and responsibilities of the company personnel /11/, certificates of worker competencies and training certificates /13/, equipment calibration certificates /07/ and confirms that the Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined have been assessed as appropriate for the purpose.

Furthermore, the verification team has checked and confirms that the calibration details provided as supporting document are appropriate. It is also evident from the monitored data, that the monitoring system ensures continuous operations with the exception of few breakdowns. The proper procedures for data handling, reporting and accuracy are in place.



APPENDIX A

Certification statement (Compliance of § 321 of VVS)

Carbon Check (Pty) Ltd, the DOE, has performed the verification of the registered CDM project activity, "Abohar Branch Canal Based Small Hydro Power Project in Punjab, India" in India (UNFCCC registration no. 4856). The project activity is designed to generate emission reductions by displacing the fossil fuel dominated grid electricity equivalent to the net renewable electricity supplied by the hydroelectric power project.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project. It is DOE's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. The DOE does not express any opinion on the selected baseline scenario or on the validated and registered PDD. The verification is carried out in-line with the VVS requirements.

The verification was performed to identify the compliance of the project activity with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information on-site that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

The verification is based on:

- Registered PDD (Version 06 and dated 01/07/2011), including the monitoring plan and the corresponding validation report;
- Approved monitoring methodology AMS I.D, version 16;
- Monitoring Report (Version 02, dated 08/05/2014)

This statement covers verification period of 486 days between 01-12-2012 and 31-03-2014.

The DOE has raised 01 clarification (CL) and 01 corrective action request (CAR), all of which have been successfully resolved by the PP and closed out by the verification team (please refer Appendix B for the detailed closure).

The DOE gives reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the registered PDD are fairly stated.

The DOE hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 26,358 tCO₂ equivalent (01/12/2012 to 31/12/2012 – 2,236 tCO₂e & 01/01/2013 to 31/03/2014 – 24,122 tCO₂e) and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records. Thus Carbon Check submits the request for issuance to the UNFCCC.

2014-06-03

Date

Priyesh Ramlall

Final Approver

Carbon Check (Pty) Ltd

2014-06-03

Date

Vikash Kumar Singh

Technical Reviewer

Carbon Check (Pty) Ltd

2014-06-03

Date

Amit Anand

Team Leader

Carbon Check (Pty) Ltd



APPENDIX B

Carbon Check CDM Verification Protocol

**Abohar Branch Canal Based Small Hydro Power Project in Punjab, India in India to
Report No. CCL257/CDM/VER/PHG/20140303/A01**

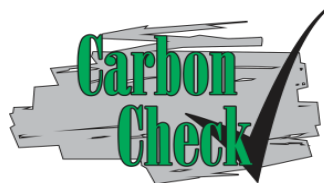


TABLE 1

Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Project implementation					
1.1 Have all physical features proposed in the registered PDD been implemented at the project site? § 236 of CDM Project Standard and § 260 (a) and 261 of VVS version 06.	/5/ /10/ /12/ /14/ /15/	DR, I	All the physical features (technology, project equipment, grid connectivity and monitoring equipment) mentioned in the registered PDD have been implemented at the project site. This was verified during on-site visit via name plate verification of all equipment. There is no change of project design with respect to registered PDD.	OK	OK
1.2 Has the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance? Reference: § 260 (a), 261 and 263 of VVS version 06.	/5/ /10/ /12/ /14/ /15/	DR, I	The installed equipments were operated as described in the registered PDD.	OK	OK
1.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site? § 194 (b) of CDM Project Standard and 263 (a) of VVS version 06.	/5/ /6/ /7/ /10/ /12/ /14/ /15/	DR, I	The project activity is implemented at five different locations – Khanpur, Sudhar, Akhara, Gholian and Channowal. The start dates of operation for each of the five sites were verified by verifying JMRs, Energy bills for the respective months and daily generation log books for each location.	OK	OK

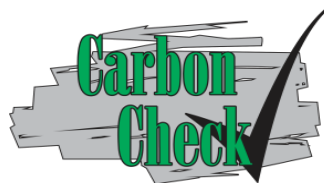
¹ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.



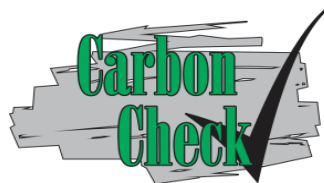
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1.4 Is the start date of monitoring period consistent?	/1/ /2/	DR, I	Start date of monitoring period has been correctly stated in the MR.	OK	OK
1.5 Is the monitoring report consistently filled with respect to all sections as required by its guideline of filling the monitoring report?	/1/ /2/	DR	Yes the MR has been consistently filled with respect to all sections as required by the MR competing guideline.	OK	OK
1.6 Does the CER's obtained for the monitoring period within the limit of estimate in the registered PDD? Is the claimed CER's justifiable?	/1/ /2/ /3/ /4/	DR	The CERs obtained for the monitoring period are within the limit of estimate in the registered PDD. The claimed CERs are justifiable.	OK	OK
1.7 Is the monitoring system provided in line diagrams showing all relevant monitoring points?	/1/ /2/	DR	The MR provides a line diagrams showing the relevant monitoring points.	OK	OK
2. Monitoring plan and methodology					
2.1 Is the monitoring plan established in accordance with the monitoring methodology? § 264 of VVS version 06.	/01/ /02/ /B04/	DR	Yes, the monitoring plan as described in the PDD is in accordance with the monitoring methodology.	OK	OK
2.2 In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB? § 286 of VVS version 06.	/01/ /02/ /B04/	DR	Not applicable	-	-
2.2.1 Have the above changes to the monitoring plan been approved by the CDM EB?	/01/ /02/ /B04/	DR	Not applicable	-	-



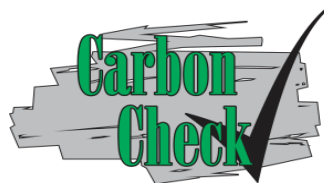
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3. Monitoring and the monitoring plan					
3.1 Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the CDM EB)? § 268 of VVS version 06.	/01/ /02/ /B04/	DR	Yes, monitoring of the parameters is established in full compliance with the monitoring plan contained in the registered PDD.	OK	OK
3.2 Are all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/01/ /02/ /B04/	DR	<p>The reporting is in line with the requirements of the applied methodology which requires that the net electricity generated by the renewable energy.</p> <p>The electricity parameter of the baseline emission parameters was monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions.</p> <p>The baseline emissions is the direct product of electricity baseline emission factor and net electricity generated by the project activity which is equal to net power exported by the project activity.</p>	OK	OK



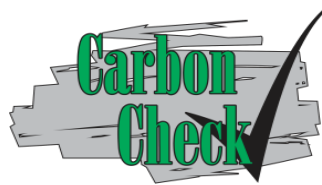
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.2.1 Was the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency?	/01/ /02/ /08/ /B04/	DR	The main meter is the basis the JMR and invoice to respective JMR is done through the data obtained from these meters. The ER calculations are also done through the received data from these meters. Net Electricity Export readings are recorded in the monthly JMR. The daily electricity generation and auxiliary consumption readings are taken on hourly basis in the daily log sheet book as per the registered monitoring plan which was verified during the on-site visit by the verification team.	OK	OK
3.2.2 Was the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/08/ /B04/	DR	All the electricity meters used during this monitoring period were calibrated in accordance with the registered monitoring plan.	OK	OK
3.3 Are all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/01/ /02/ /B04/	DR, I	No project emissions are projected as per registered PDD and meth. The same was also reconfirmed during the on-site visit.	OK	OK
3.3.1 Was the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency?	/01/ /02/ /B04/	DR, I	See above comment	OK	OK



Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.3.2 Was the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/01/ /02/ /B04/	DR, I	See above comment	OK	OK
3.4 Are all leakage emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/01/ /02/ /B04/	DR, I	No leakage is projected as per registered PDD and meth. The same was also reconfirmed during the on-site visit.	OK	OK
3.4.1 Was the monitoring equipment for leakage emission parameters controlled and monitoring results recorded as per approved frequency?	/01/ /02/ /B04/	DR, I	Same as above	OK	OK
3.4.2 Was the monitoring equipment for leakage emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/01/ /02/ /B04/	DR, I	Same as above	OK	OK
3.5 Were all monitoring parameters available and verifiable through the whole monitoring period?	/01/ /02/ /B04/	DR, I	The daily and monthly electricity generation and auxiliary consumption meter readings are recorded in the daily generation log book at power house. The monthly export and import electricity figures are recorded in the monthly JMR reports prepared by PSEB. The corresponding monthly energy bills confirm the monthly electricity figures in the JMRs. All the electricity meter readings and the electricity figures in the reported monitoring period could be verified through JMRs and invoices raised for the	OK	OK



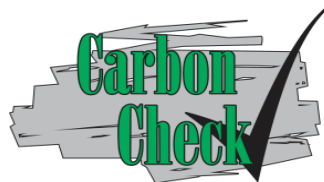
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			respective JMRs.		
3.5.1 In case, only partial monitoring data is available and PP(s) provide estimations or assumptions for the rest of data, was it possible to verify those estimations and assumptions?	/01/ /02/	DR, I	Not applicable	OK	OK
3.6 Was management and operation system established and operated in accordance with the monitoring plan?	/01/ /02/ /B04/	DR, I	Yes, the management and operation system was established and operated in accordance with the monitoring plan.	OK	OK
3.7 Was is it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	/01/ /02/ /B04/	DR, I	Yes, it was verified that the plant personnel were well aware and competent for operation of the plant and data recording.	OK	OK
3.8 Does the monitoring system provide organizational structure, role and responsibilities, emergency procedures?	/01/ /02/ /B04/	DR, I	Yes, the monitoring system provides organizational structure, role and responsibilities, emergency procedures.	OK	OK
3.9 Does any uncertainties identified and addressed?	/01/ /02/ /B04/	DR, I	No uncertainties were identified during the monitoring period.		
4. Parameters					
4.1.1 Monitored parameter Title: Electricity exported by project Indication: EG _{export,y}	/01/ /02/ 03/	DR	The electricity exported to the grid is measured by the bi-directional tri-vector energy meter installed at the project sites on continuous basis.	CAR-01	OK



Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
Units: MWh Measured value (<i>ex-post</i>): 32,877.3418	/04/ /06/ /07/ /08/ /B04/		<p>Once in a month, JMR is signed by the representatives of Punjab State Electricity Board (PSEB) and Abohar Power Generation Power Ltd. The measurement method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified.</p> <p>Accuracy testing of energy meters are carried out by PSEB and all the calibration records were checked and found OK.</p> <p>The values are sufficiently justified as they are in agreement with the JMRs for each month of the monitoring period and sales invoices for the entire monitoring period.</p> <p>However, CAR 01 was raised as the export, import and net electricity values of the electricity as reported in the MR version 01 and the ER spread sheet do not match exactly with the decimal places with the JMRs.</p> <p>Also the unit of electricity has been stated as MWh in section D.2 of the MR whereas it has been stated as kWh in the Annexes for the same values.</p> <p>The CAR was closed after the PP revised the MR putting the correct values of the electricity from the JMRs.</p>		
4.1.2 Monitored parameter	/01/	DR	The electricity imported from the grid is measured by the bi-directional tri-vector	CAR 01	OK



Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>Title: Electricity imported by project</p> <p>Indication: $EG_{import,y}$</p> <p>Units: MWh</p> <p>Measured value (<i>ex-post</i>): 55.2248</p>	<p>/02/</p> <p>03/</p> <p>/04/</p> <p>/06/</p> <p>/07/</p> <p>/08/</p> <p>/B04/</p>		<p>energy meter installed at the project sites on continuous basis.</p> <p>Once in a month, JMR is signed by the representatives of Punjab State Electricity Board (PSEB) and Abohar Power Generation Power Ltd. The measurement method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified.</p> <p>Accuracy testing of energy meters are carried out by PSEB and all the calibration records were checked and found OK.</p> <p>The values are sufficiently justified as they are in agreement with the JMRs for each month of the monitoring period and sales invoices for the entire monitoring period.</p> <p>However, CAR 01 was raised as the export, import and net electricity values of the electricity as reported in the MR version 01 and the ER spread sheet do not match exactly with the decimal places with the JMRs.</p> <p>Also the unit of electricity has been stated as MWh in section D.2 of the MR whereas it has been stated as kWh in the Annexes for the same values.</p> <p>The CAR was closed after the PP revised the MR putting the correct values of the electricity from the JMRs.</p>		



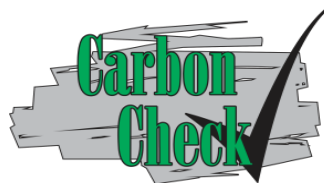
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>4.1.3 Monitored parameter</p> <p>Title: Net Electricity exported to the grid by project</p> <p>Indication: $EG_{Net,y}$</p> <p>Units: MWh</p> <p>Measured value (<i>ex-post</i>): 32,822.1170</p>	<p>/01/ /02/ 03/ /04/ /06/ /07/ /08/ /B04/</p>	<p>DR</p>	<p>The net electricity exported to the grid is calculated as the difference of the monitored export and import electricity.</p> <p>Once in a month, JMR is signed by the representatives of Punjab State Electricity Board (PSEB) and Abohar Power Generation Power Ltd. The measurement and calculation method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified.</p> <p>The values are sufficiently justified as they are in agreement with the JMRs for each month of the monitoring period and sales invoices for the entire monitoring period.</p> <p>However, CAR 01 was raised as the export, import and net electricity values of the electricity as reported in the MR version 01 and the ER spread sheet do not match exactly with the decimal places with the JMRs.</p> <p>Also the unit of electricity has been stated as MWh in section D.2 of the MR whereas it has been stated as kWh in the Annexes for the same values.</p> <p>The CAR was closed after the PP revised the MR putting the correct values of the electricity from the JMRs.</p>	<p>CAR-01</p>	<p>OK</p>



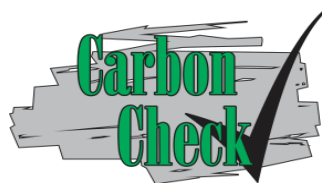
Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>4.1.4 Monitored parameter</p> <p>Title: Gross electricity generation by the project</p> <p>Indication: $EG_{Gross,y}$</p> <p>Units: MWh</p> <p>Measured value (<i>ex-post</i>): 34,035.526</p>	<p>/01/ /02/ 03/ /04/ /08/ /09/ /B04/</p>	<p>DR, I</p>	<p>The electricity generated from the generators is measured by the energy meter installed at the project sites on continuous basis.</p> <p>The same is recorded hourly in the daily log sheet book by the technical assistance/ operator.</p> <p>The measurement method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified.</p> <p>The values given in the monitoring report and the corresponding Excel sheets are correct.</p> <p>Accuracy testing of energy meters are carried out by Neno technical services / Advance control systems (accredited by NABL) and all the calibration records were checked and found OK.</p> <p>However, CL 01 was raised as the calibration dates as stated in MR, version 01 for the Gross generation meters as 07/03/2012 for all the sites were found to be incorrect.</p> <p>The CL was closed after the PP submitted revised MR with correct dates of calibration.</p> <p>This parameter is not used in the calculation of emission reductions.</p>	<p>CL-01</p>	<p>OK</p>



Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>4.1.5 Monitored parameter</p> <p>Title: Auxiliary electricity consumption by project</p> <p>Indication: $EG_{Aux,y}$</p> <p>Units: MWh</p> <p>Measured value (<i>ex-post</i>): 297.042</p>	<p>/01/ /02/ 03/ /04/ /08/ /09/ /B04/</p>	<p>DR, I</p>	<p>The electricity consumed in-house from the generated electricity to run the plant auxiliaries is measured by the energy meters installed at the project sites on continuous basis.</p> <p>The same is recorded hourly in the daily log sheet book by the technical assistance/ operator.</p> <p>The measurement method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified.</p> <p>The values given in the monitoring report and the corresponding Excel sheets are correct.</p> <p>Accuracy testing of energy meters are carried out by Neno technical services / Advance control systems (accredited by NABL) and all the calibration records were checked and found OK.</p> <p>However, CL 01 was raised as the calibration dates as stated in MR, version 01 for Auxiliary meters for Khanpur, Sudhar and Akhara as 26/02/2014 and for Gholian and Channowal as 27/02/2014 and 07/03/2012 for all the sites were found to be incorrect.</p> <p>The CL was closed after the PP submitted revised MR with correct dates of calibration.</p> <p>This parameter is not used in the</p>	<p>CL-01</p>	<p>OK</p>



Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			calculation of emission reductions.		
4.2 Default parameter Title: Grid emission factor for the NEWNE grid Indication: EF_{grid} Units: tCO ₂ /MWh Estimated value (<i>ex-ante</i>): 0.8031	/01/ /02/ /B04/	DR	This parameter is determined ex-ante as per the registered PDD and used as fixed for the crediting period.	OK	OK
5. Calculations					
5.1 Have all the calculations related to the baseline emissions been carried according to the formulae and methods described in the registered PDD and applied methodology? § 279 of VVS version 06.			The calculations and applied formulae and method for calculation of baseline emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology AMS ID/ Version 16. The formulae and the methods referred in the MR and the spread sheet for estimation of GHG reduction comply with the corresponding formulae and methods in the registered PDD.	OK	OK
5.2 Have all the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/01/ /02/ /B04/	DR	Project emissions are not applicable for the project activity.	OK	OK

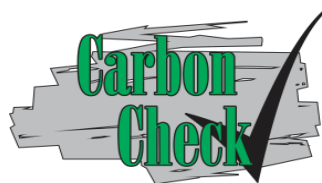


Carbon Check's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
5.3 Have all the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/01/ /02/ /B04/	DR	Leakage emissions are not applicable for the project activity	OK	OK

List of findings (compliance of § 319 (c) and (g) of VVS)

TABLE 2

Finding (reference 4.1 section of Appendix B)	CAR 01		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding (DOE)	The export, import and net electricity values of the electricity as reported in the MR version 01 and the ER spread sheet do not match exactly with the decimal places with the JMRs. Also the unit of electricity has been stated as MWh in section D.2 of the MR whereas it has been stated as kWh in the Annexes for the same values.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The export, import and net electricity values of the electricity as reported in the MR version 01 and the ER spread sheet has been rectified with the decimal places with the JMRs and unit of electricity has been stated in section D.2 of the MR has been changed in MWh.		
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The export, import and net electricity values have been corrected matching with the corresponding JMRs. Also the ER sheet has been corrected. Unit of electricity has been corrected to MWh throughout the MR and ER sheet.		
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Outstanding finding (not closed) <input checked="" type="checkbox"/> The finding is closed		



Finding (reference 4.1 section of Appendix B)	CL 01		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding (DOE)	<p>The following calibration dates as stated in MR, version 01 were found to be incorrect:</p> <ol style="list-style-type: none"> 1. Gross generation and Auxiliary meters as 07/03/2012 for all the sites 2. Auxiliary meters for Khanpur, Sudhar and Akhara as 26/02/2014 3. Auxiliary meters for Gholian and Channowal as 27/02/2014 		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	<p>All the calibrations dated stated in MR, version 01 has been rectified and corrected according to calibration report.</p>		
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Gross generation and Auxiliary meters calibration dates have been corrected to 03/09/2012. 2. Auxiliary meters calibration dates for Khanpur, Sudhar and Akhara has been corrected to 30/08/2013. 3. Auxiliary meters calibration dates for Gholian and Channowal has been corrected to 31/08/2013. 		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Outstanding finding (not closed) <input checked="" type="checkbox"/> The finding is closed		



APPENDIX C

Certificates of Competence



Carbon Check (Pty) Ltd

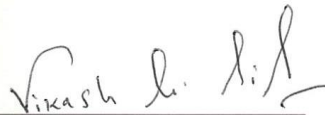
Amit Anand

is hereby certified as a qualified

Assessor
Lead Assessor
Technical Reviewer
Technical Expert for Technical Area
1.2; 13.1

*with Carbon Check (Pty) Ltd, under the regulations of the
UNFCCC and Carbon Check's qualification criteria .*

Approval date: 15 November 2013



Technical Executive
Mr Vikash Kumar Singh



Executive Director
Mr Priyesh Ramlall

The above competence is valid for one year from the date of approval and is
subject to review as per changes in CCL and UNFCCC requirements and
procedures.



Carbon Check (Pty) Ltd

Sanjay Agarwalla

is hereby certified as a qualified

Assessor
Lead Assessor
Technical Expert

In the following Technical Areas
1.1; 1.2; 3.1, 5.1

*with Carbon Check (Pty) Ltd, under the regulations of the
UNFCCC and Carbon Check's qualification criteria .*

Approval date: 26 February 2014



Technical Executive
Mr Amit Anand



Executive Director
Mr Priyesh Ramlall

The above competence is valid for one year from the date of approval and is subject to review as per changes in CCL and UNFCCC requirements and procedures.



Carbon Check (Pty) Ltd

Anubhav Dimri

is hereby certified as a qualified

Assessor
Lead Assessor
Technical Expert

In the following Technical Areas
1.2; 3.1

*with Carbon Check (Pty) Ltd, under the regulations of the
UNFCCC and Carbon Check's qualification criteria .*

Approval date: 27 March 2014



Technical Executive
Mr Adam Simcock



Executive Director
Mr Priyesh Ramlall

The above competence is valid for one year from the date of approval and is subject to review as per changes in CCL and UNFCCC requirements and procedures.



Carbon Check (Pty) Ltd

Vikash Kumar Singh

is hereby certified as a qualified

Assessor

Lead Assessor

Technical Expert

Technical Reviewer

In the following Technical Areas

1.2; 3.1; 13.1

*with Carbon Check (Pty) Ltd, under the regulations of the
UNFCCC and Carbon Check's qualification criteria .*

Approval date: 15 November 2013



Chief Executive Officer
Mr Adam Simcock



Executive Director
Mr Priyesh Ramlall

The above competence is valid for one year from the date of approval and is subject to review as per changes in CCL and UNFCCC requirements and procedures.