

Verification and Certification Report

Sixth periodic verification

Report for:

Aqua Power Private Limited

Verification of CDM project for
Lohgarh, Chakbhai and Sidhana Mini Hydroelectric
Projects
UNFCCC Ref No. 0327

Monitoring Period:
01/08/2011 to 30/09/2012 (Inclusive of both the
days)

LRQA Reference : CDM-MUM-0061936, version 03
Date : 13/03/2013
Work carried out by : Sanjay Kumar Agarwalla
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1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by Aqua Power Private Limited (APPL), representing the project participants (PP), to undertake the sixth periodic verification of the registered project activity, "Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects" project reference number 0327 covering the sixth monitoring period from 01/08/2011 to 30/09/2012. The verification has been performed by document review based on the Monitoring Report Version 01 dated 03/10/2012, on-site assessment and interviews with the stakeholders, resolution of outstanding issues and issuance of the verification report.

The project intends to reduce greenhouse gas (GHG) emissions by installation of grid connected canal drop hydro power projects on the Bathinda Branch Canal, in the state of Punjab in India aggregating to a total capacity of 5.2 MW. The electricity generated by the project activity is supplied to Punjab State Electricity Board (PSEB) in the Punjab state of India. The project consists of three (3) sites viz. Lohgarh, Chakbhai and Sidhana with installed capacities of 2.0 MW (=2 x 1,000 kW), 2.0 MW (=2 x 1,000 kW) and 1.2 MW (=1 x 1,200 kW), respectively. The electricity generated by the project activity is supplied to the NEWNE grid (formerly it was northern regional grid which is now interconnected with NEWNE grid), which is predominantly fossil fuel based, thereby reducing GHG emissions.

The fulfilment of the requirements as set forth in the Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the modalities and procedures for a CDM and relevant decisions of the Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol (COP/MOP) and the Executive Board of the CDM (CDM-EB) has been evaluated and the conformance to the verification requirements were confirmed based on the given information. A risk based approach was taken to conduct the verification, and corrective action requests (CARs) and clarifications (CLs) were issued for relevant actions by the PP.

The verification team identified, through the verification process, 5 CARs and 2 CLs. The PP has taken actions and submitted to LRQA the revised monitoring report and supporting evidence. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period are correctly calculated in the monitoring report Version 03 dated 05/03/2013 based on the approved monitoring methodology and the monitoring plan of the registered PDD. Therefore LRQA certifies the emission reductions amounting to 30,772 tCO₂e and requests the CDM-EB to issue the CERs.

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Abbreviations

APPL	Aqua Power Private Limited
BE	Baseline emissions
CAR	Corrective action request
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DOE	Designated Operational Entity
ERs	Emission reductions
FAR	Forward action request
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
IS	Indian Standard
JMR	Joint Meter Reading
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
kW	Kilo Watt
kWh	Kilo Watt hour
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
MMTS	Meter Mobile Testing Squad
MP	Monitoring period
MR	Monitoring Report
MW	Mega Watt
MWh	Mega Watt hour
NA	Not applicable
NABL	National Accreditation Board for Testing and Calibration Laboratories
NEWNE	Northern, Eastern, Western, and North-Eastern Grid
ODA	Official Development Assistance
PDD	Project design document
PLF	Plant Load Factor
PP	Project participant
PPA	Power Purchase Agreement
PSEB	Punjab State Electricity Board
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
tCO ₂ e	Tonne of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard



2 Introduction

The project participant (PP) represented by Aqua Power Private Limited has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake the sixth periodic verification of the proposed project activity "Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects" covering the monitoring period from 01/08/2011 to 30/09/2012. This report summarises the findings through the verification process that has been conducted on the verification requirements of the CDM.

The verification has been undertaken by the team formed of the qualified personnel of LRQA as follows:

Sanjay Kumar Agarwalla	LRQA India	Team Leader, CDM Lead Verifier and Sector Expert
Syju Alias	LRQA India	Team Member, CDM Verifier and Sector Expert
Imran Ustad	LRQA India	Technical Reviewer and Sector Expert
Ketan S Deshmukh	LRQA Ltd	Decision Maker

Personnel being engaged in CDM project verification are qualified based on the established procedures of LRQA to assure the resource requirements that satisfy all the requirements of competence criteria of the CDM accreditation standard for operational entities. LRQA is designated as an operational entity and holds the full responsibility on decision-making regarding the verification in accordance with the accreditation requirements of the CDM-EB. The certificate of appointment of the team personnel is attached to this report.

2.1 Objective

Through the verification activities, the verification team was to confirm that:

- 1) the project activity has been implemented and operated as described in the validated and registered PDD and that all physical features of the project activity are in place
- 2) the monitoring report (MR) and other supporting documents provided are complete and verifiable, and in accordance with applicable CDM requirements
- 3) actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP) and the approved methodology; and
- 4) the data is recorded and stored as per the monitoring methodology.

The verification followed the requirements of the current version of the CDM Validation and Verification Standard (CDM VVS) to ensure the quality and consistency of the verification work and the report.

2.2 Scope

The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the CDM M&P. LRQA followed a risk-based approach in the verification, focusing on the identification of significant risks for implementation of the registered monitoring plan and the resultant emission reductions. The verification statement shall become final after final review by the decision maker of LRQA Ltd.



2.3 GHG Project Description

Project title	Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects																						
CDM reference	0327																						
Date of registration	30/04/2006																						
Applied methodology	AMS I.D, version 07																						
Crediting period	20/11/2004 to 19/11/2014 (fixed)																						
Project location	<p>The project consists of three sites whose locations are as follows:</p> <table border="1"> <tr> <th></th><th>Lohgarh</th><th>Chakbhai</th><th>Sidhana</th></tr> <tr> <td>Town</td><td>Raikot</td><td>Mehal Kalan</td><td>Rampura Phul</td></tr> <tr> <td>District</td><td>Ludhiana</td><td>Barnala</td><td>Bathinda</td></tr> <tr> <td>State</td><td>Punjab</td><td>Punjab</td><td>Punjab</td></tr> <tr> <td>GPS co-ordinates (decimal format)</td><td>30.5976 N 75.6677 E</td><td>30.5752 N 75.4894 E</td><td>30.3521 N 75.2285 E</td></tr> </table>				Lohgarh	Chakbhai	Sidhana	Town	Raikot	Mehal Kalan	Rampura Phul	District	Ludhiana	Barnala	Bathinda	State	Punjab	Punjab	Punjab	GPS co-ordinates (decimal format)	30.5976 N 75.6677 E	30.5752 N 75.4894 E	30.3521 N 75.2285 E
	Lohgarh	Chakbhai	Sidhana																				
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State	Punjab	Punjab	Punjab																				
GPS co-ordinates (decimal format)	30.5976 N 75.6677 E	30.5752 N 75.4894 E	30.3521 N 75.2285 E																				
Project participants	Aqua Power Private Limited																						
Monitoring period	01/08/2011 to 30/09/2012																						

3 Methodology

3.1 Verification approach

LRQA's verification of the project documentation provided by the project participant was based on both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to LRQA. Qualitative information is made up of the information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emission reports, and review and internal audit of calculations.

As well as the monitoring documentation provided by the project participants, LRQA also reviewed:

- a) the registered PDD and the monitoring plan and the corresponding validation report
- b) the applied monitoring methodology
- c) relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board
- d) any other information and references relevant to the project's resulting emissions reductions.

LRQA also confirmed that the Monitoring Report is as per the standardised format.

LRQA also confirmed that this is first periodic verification and also there was no FAR raised during the validation which needs to be addressed during this verification.



3.2 Desk review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- 1) a review of data and information presented to verify their completeness
- 2) a review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- 3) an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report version 01 dated 03/10/2012 was initially reviewed and LRQA requested the PP to present the supporting information and documents and such additional information and documents were also reviewed by LRQA. The documents reviewed by LRQA are listed in Appendix A.

Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by LRQA. The documents reviewed by LRQA are listed in Appendix A. LRQA reviewed the final version of the monitoring report version 03 dated 05/03/2013 to confirm that all changes agreed had been incorporated.

3.3 On-site assessment

An on-site assessment was conducted as a part of verification activity and involved:

- 1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD
- 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters
- 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP
- 4) a cross-check between information provided in the MR and data from other sources
- 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology
- 6) A review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

The detail of the on-site assessment is as follows:



Date	Location	Team Members on site	Subjects covered	Persons interviewed
14/01/2013	PP office, Delhi	Sanjay Kumar Agarwalla, Syju Alias	Project implementation, Data Management and reporting, Legal approvals for the project	Pushpinder Singh
16/01/2013	Project sites: Lohgarh site in Raikot, Ludhiana district; Chakbhai in Mehal Kalan in Barnala district; Sidhana site in Rampura Phul in Bathinda district	Sanjay Kumar Agarwalla	<ol style="list-style-type: none"> 1. Status of project implementation 2. Confirmation of technical specifications of project equipment 3. Monitoring systems and calibration Electricity Monitoring and measuring systems 4. Monitoring and reporting procedures 5. Emergency procedures –Change / failure in meters / equipment 6. Emission reductions data 7. QA/QC procedures 8. Training activities for staffs 9. Record keeping – daily production report, breakdown / maintenance log 10. Project Boundary confirmation 11. Confirmation of project GPS coordinates 12. Compliance to regulatory requirements 	<ol style="list-style-type: none"> 1. Anil Jagga, Plant Manager, APPL 2. Livtar Singh, Asst. Maintenance Engineer, APPL, Chakbhai 3. Harjit Singh, Plant Shift Supervisor, APPL, Chakbhai 4. Manjit Singh, Villager, Chakbhai 5. R.K.Mittal, Additional Superintending Engineer, PSEB 6. Narender Singh, Asst. Maintenance Engineer, APPL, Lohgarh 7. Baljit Singh, Plant Shift Supervisor, APPL, Lohgarh 8. Jaswant Singh, Villager, Lohgarh 9. Hardeep Singh, Maintenance Engineer, APPL, Sidhana 10. Rupinder Singh, Plant Shift Supervisor, APPL, Sidhana 11. Raju Singh, Villager, Sidhana



For details of all the findings of the desk review and site visit, please refer to the Verification Protocol and Findings in Appendix C.

3.4 Quality of evidence

When verifying the reported emission reduction, LRQA ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown in Appendix A.

When assessing the audit trails, LRQA also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. the source and nature of the evidence
3. if comparable information was available from sources other than that used in the monitoring report, LRQA cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix A.

LRQA also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

3.5 Resolution of clarification and corrective action requests

LRQA, during this verification, identified issues related to the monitoring, implementation or operation of the proposed CDM project activity that could impair the capacity of the proposed CDM project to achieve emission reductions or influence the reporting of emission reductions. LRQA has identified, discussed and concluded these issues within the Verification Protocol and Findings – Appendix C.

LRQA has raised a Corrective Action Request (CAR) if one of the following occurred:

1. A non-compliance with the monitoring plan or methodology is found in the monitoring and reporting that has not been sufficiently documented by the project participants, or the evidence provided to prove conformity is insufficient
2. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants
3. Mistakes have been made in applying assumptions, data or calculations in relation to emission reductions that will impact upon the quantity of emission reductions
4. Issues identified in a FAR during validation or previous verification(s) to be verified during verification have not been resolved by the project participants.

LRQA has raised a Clarification Request (CL) if information was insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs and CLs raised by LRQA during this verification have been resolved. If this was not completed, the ERs cannot be certified and recommended for issuance to the CDM Executive Board.

3.6 Internal quality control

The technical review by a qualified person independent from the verification team, and a review by an authorised decision maker are conducted before the submission of the verification report to the PP and before requesting the issuance of the verified ERs.



4 Verification protocol and conclusions

LRQA has undertaken this verification in accordance with the verification protocol (which is based on the Clean Development Mechanism Validation and Verification Standard Version 03.0). This section provides an overview of the verification activities and general conclusions. Further details in relation to each element of the protocol and to each finding are shown in Verification Protocol and Findings – Appendix C.

The protocol is structured based on the main verification requirements as follows:

- compliance of the project implementation with the registered project design document
- compliance of the monitoring plan with the monitoring methodology, including applicable tool(s)
- compliance of monitoring activities with the registered monitoring plan
- compliance with the calibration frequency requirements for measuring instruments
- assessment of data and calculation of emission reductions.

4.1 Compliance of the project implementation with the registered project design document

LRQA has determined during the verification process that:

- the implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PDD

LRQA has, by means of a desk review and an on-site visit, assessed that:

- all physical features of the proposed CDM project activity proposed in the registered PDD are in place
- the project participants have operated the proposed CDM project activity as per the registered PDD

For details of the implementation status of the project, the actual operation of the proposed CDM project activity, any information provided in the monitoring report that is different from that stated in the registered PDD¹, and any approvals of the necessary request of notification or request for approval of changes, please refer to the Verification Protocol in Appendix C.

4.2 Compliance of the monitoring plan with the monitoring methodology, including applicable tool(s)

LRQA has determined that the project implementation is in accordance with the provisions of the registered PDD and has also verified that the validated monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

For details relating to this section, please refer to the Verification Protocol in Appendix C.

LRQA confirms that the monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

¹ And has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in future monitoring periods



4.3 Compliance of monitoring activities with the registered monitoring plan

LRQA has confirmed that:

1. the monitoring plan and the applied methodology have been properly implemented and followed by the project participants
2. all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions, have been sufficiently monitored and updated as applicable, including:
 - a. project emission parameters
 - b. baseline emission parameters
 - c. leakage parameters
 - d. management and operational system
3. the accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan
4. monitoring results are consistently recorded as per approved frequency
5. quality assurance and quality control procedures have been applied in accordance with the monitoring plan.

For details relating to this section, please refer to the Verification Protocol in Appendix C.

LRQA confirms that monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

The list in the Verification Protocol – Appendix C shows each parameter required by the monitoring plan, and clearly states how LRQA has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters, including the values in the monitoring report.

4.4 Compliance with the calibration frequency requirements for measuring instruments

LRQA has determined that the calibration of measuring equipment has been conducted at the frequency specified in the applied monitoring methodology and in the registered monitoring plan.

For details relating to the frequency of calibration and any cases identified of delayed calibration, please refer to the Verification Protocol in Appendix C.

4.5 Assessment of data and calculation of emission reductions

LRQA has determined whether:

1. a complete set of data for the specified monitoring period is available
2. information provided in the monitoring report has been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis
3. calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae



and methods described in the monitoring plan and the applied methodology document

4. any assumptions used in emission calculations have been justified
5. appropriate emission factors, IPCC default values and other reference values have been correctly applied.

For details of whether data was not available because activity levels or non-activity parameters were not monitored in accordance with the registered monitoring plan, a description of LRQA cross-checked reported data, please refer to the Verification Protocol in Appendix C.

LRQA confirms that appropriate methods and formulae for calculating baseline emissions, projects emissions and leakage have been followed.

LRQA is of the opinion that all assumptions, emissions factors and default values that were applied in calculations have been justified.

5 Making the monitoring report publicly available

In accordance with the "Procedures for making the monitoring report available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM", the monitoring report Version 01 dated 03/10/2012 was made publicly available on the CDM website on 05/10/2012 at:

<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1142612177.68/iProcess/LRQA%20Ltd1349424539.04/view>



6 Certification report

LRQA has undertaken the sixth periodic verification of the proposed project activity “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” covering the monitoring period from 01/08/2011 to 30/09/2012 based on the requirements of CDM as set out in Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country’s legislation and its specific requirements for sustainable development.

Through the verification process, the verification team identified 5 CARs and 2 CLs. The PP has taken actions to address the CARs and CLs and submitted to LRQA the revised monitoring report Version 03 dated 05/03/2013 and any other supporting evidence. All CARs and CLs have been appropriately closed before the issuance of the verification report.

The verification team is of the opinion that the proposed project activity has been implemented in accordance with the registered PDD, the MP complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct. Therefore LRQA hereby certifies, and requests the issuance of, the reported ERs of “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” during the monitoring period of 01/08/2011 to 30/09/2012 amounting to 30,772 tCO₂e to the CDM Executive Board.

Decision Maker

Ketan S Deshmukh

21/03/2013



7 Appendices

7.1 Appendix A: List of documents reviewed

Category A documents (documents from the PP)

1	Monitoring Report version 01, dated 03/10/2012, version 02 dated 22/01/2013 and version 03 dated 05/03/2013
2	Emission reduction calculation spread sheet version 01, dated 03/10/2012 and version 02 dated 05/03/2013
3	Copies of evidence for start of operation of the projects at Lohgarh (2 MW) in October 2005, Chakbhai (2 MW) in November 2004 and Sidhana (1.20 MW) in October 2007.
4	Copies of monthly Joint Meter Reading (JMR) reports covering the period 01/08/2011 to 30/09/2012
5	Copies of monthly energy sales bills / invoices covering the monitoring period raised by PP
6	Calibration certificates for the electricity generation meters, auxiliary meters and main and check meters covering the period 01/08/2011 to 30/09/2012
7	Records of the gross electricity generation, auxiliary consumption and net exported electricity figures at the three sites of the project activity
8	Technical specifications of the hydro turbines and generators (provided by the manufacturer) of rated capacities of Lohgarh 2 MWe (1000 kW x 2), Chakbhai 2 MWe (1000 kW x 2) and Sidhana 1.20 MWe.
9	Data capturing and QA/QC procedures, roles and responsibilities of the company personnel for the project activity.
10	Proof of statutory clearances for the project activity.
11	Proof of training and competency of the project operators
12	Extract of Power Purchase Agreement for the project activity
13	Single line diagram showing the electricity generation, transmission, evacuation and metering system.
14	Declaration by PP confirming no diversion of Official Development Assistance (ODA) funds for the project activity was involved
15	Proof of training and competency of the project operators
16	Extract of Power Purchase Agreement for the project activity
17	Single line diagram showing the electricity generation, transmission, evacuation and metering system.

Category B documents (other documents referenced)

1	Registered PDD available on the project page of UNFCCC project reference number 0327
2	Validation Report, version 02, dated 16/03/2006 for the project activity available on the project page of UNFCCC project reference number 0327
3	Monitoring methodology AMS I.D, version 07
4	Validation and Verification Standard, version 03.0



7.2 Appendix B: Certificate of Appointment

Verification of “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects”

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the CDM project activity.

Name of Person	Assigned Roles
Sanjay Kumar Agarwalla	Team Leader, Sector Expert
Syju Alias	Team Member, Sector Expert
Imran Ustad	Technical Reviewer, Sector Expert
Ketan S Deshmukh	Decision Maker

Signed by

Decision Maker

Ketan S Deshmukh
21/03/2013

7.3 Appendix C: Verification Protocol and Findings

	Verified situation	Conclusion
SECTION 1. Project implementation in accordance with the registered PDD		
General description of the project		
1.1. Does the MR provide general information of the project and is it as registered by CDM-EB?	<p>Yes.</p> <p>The information provided in the Monitoring Report (Version 03 dated 05/03/2013) is consistent with the registered PDD available in the project page of UNFCCC.</p> <p>The project activity, "Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects" was registered as a CDM project on 30/04/2006 (UNFCCC Ref No.0327) applying the methodology AMS I.D, version 07 "Renewable electricity generation for a grid".</p> <p>The registered project comprises 3 mini Hydroelectric projects of total installed capacity 5.2 MW located at Lohgarh, Chakbhai and Sidhana on the Bathinda branch canal in the state of Punjab in India. The individual capacities of the projects are 2.0 MW (1000 kW X 2) for Lohgarh, 2.0 MW (1000 kW X 2) for Chakbhai and 1.2 MW (1200 kW X 1) for Sidhana and the electricity generated is exported to Punjab State Electricity Board (PSEB).</p> <p>Aqua Power Private Limited (APPL) is the project participant who commissioned the 3 mini hydroelectric projects at Lohgarh in October, 2005, at Chakbhai in November 2004 and at Sidhana in October, 2007. 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.</p> <p>With reference to section A.1 of the MR, it is confirmed that the MR provides general information of the project which is consistent with the registered PDD.</p> <p>However, CAR 01 was raised as the description of the installed technology (ies),</p>	<p>CAR-01</p> <p>CAR-02</p> <p>OK</p>

	Verified situation	Conclusion																												
	<p>technical process and equipment, including diagrams were not provided in section A.1 of the MR version 01 dated 03/10/2012.</p> <p>Also name of the PP does not match with the project page on UNFCCC site for the project activity and Annex I PP is missing in section A.3 of the published MR. CAR 02 is raised in this respect. The CARs were closed after appropriate revision of the MR. The resolution is detailed in the findings section of the report.</p>																													
1.2. Is the Monitoring report as per the standardised format? (E66 Annex 20)	<p>Yes.</p> <p>The MR has used the latest available version of MR’s template version 02.0 (EB66, Annex 20) and this is valid at the time of filing request for issuance.</p>	OK																												
1.3. Is there any open issue in the validation / previous verification including FARs? (CDM VVS para. 213)	No. There is no open issue either in the validation or previous verification which needs to be addressed during this periodic verification.	OK																												
Implementation status of the project activity																														
1.4. Is the project location indicated as the same as the registered PDD? Confirm geographical coordinates	<p>Yes.</p> <p>As per the registered PDD, the locations for the three installations, Lohgarh, Chakbhai and Sidhana are located on the Bathinda branch canal located downstream of Bowani head regulator.</p> <table border="1"> <thead> <tr> <th></th> <th>Lohgarh</th> <th>Chakbhai</th> <th>Sidhana</th> </tr> </thead> <tbody> <tr> <td>Latitude (decimal format)</td> <td>30.5976 N</td> <td>30.5752 N</td> <td>30.3521 N</td> </tr> <tr> <td>Longitude (decimal format)</td> <td>75.6677 E</td> <td>75.4894 E</td> <td>75.2285 E</td> </tr> <tr> <td>Town</td> <td>Raikot</td> <td>Mehal Kalan</td> <td>Rampura Phul</td> </tr> <tr> <td>District</td> <td>Ludhiana</td> <td>Barnala</td> <td>Bathinda</td> </tr> <tr> <td>State</td> <td>Punjab</td> <td>Punjab</td> <td>Punjab</td> </tr> <tr> <td>Country</td> <td>India</td> <td>India</td> <td>India</td> </tr> </tbody> </table> <p>However, the latitude and longitude of the three sites as stated in the MR version 01 were incorrect. CL 01 was raised in this respect. The CL was closed after appropriate revision in the MR and the resolution is detailed in the findings section of the report. The team confirms the correctness of the geographical coordinates in</p>		Lohgarh	Chakbhai	Sidhana	Latitude (decimal format)	30.5976 N	30.5752 N	30.3521 N	Longitude (decimal format)	75.6677 E	75.4894 E	75.2285 E	Town	Raikot	Mehal Kalan	Rampura Phul	District	Ludhiana	Barnala	Bathinda	State	Punjab	Punjab	Punjab	Country	India	India	India	<p>CL-01</p> <p>OK</p>
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Country	India	India	India																											

	Verified situation	Conclusion						
	the revised monitoring report after reviewing in "Google Earth", a web based software application.							
1.5. Is the project boundary described in the same way as the registered PDD? Please confirm each component based on the applied methodology.	The description of the installed technology (ies), technical process and equipment, including diagrams were not provided in the MR version 01 dated 03/10/2012. It is not in line with the Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20. In the revised MR, the PP has revised section A.1 providing the technical details of the project and also the project boundary diagram included in line with the registered PDD and the applied methodology in section B.2 of the revised MR. Hence the CAR was closed; the resolution is detailed in the finding section of the report.	CAR-01 OK						
1.6. Has on-site fossil fuel consumption, if any, been monitored? Is any emission source missed? Check the site lay-out and confirm through site tour.	The turbines run exclusively with hydro energy without any usage of fossil fuel and this was confirmed during the on site visit.	OK						
1.7. Confirm contractors for equipment and installation works	The hydro turbines used at all the three sites are supplied by Boving Fouress. This was confirmed during the on site visit.	OK						
1.8. Confirm conformance with baseline and monitoring methodology - Applicability conditions. Please refer to the complete description of the applicability conditions and confirm that the project activity meets all the requirements.	<p>The small scale methodology AMS I.D is applicable for the following technologies/measure.</p> <table border="1"> <thead> <tr> <th></th><th>Technology/measure as per the methodology</th><th>Validated situation</th></tr> </thead> <tbody> <tr> <td>1</td><td><i>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.</i></td><td>The team confirms from the review of documents and by means of on site visit, that the project is a small scale canal drop type hydroelectric project of capacity 5.2 MW.</td></tr> </tbody> </table>		Technology/measure as per the methodology	Validated situation	1	<i>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.</i>	The team confirms from the review of documents and by means of on site visit, that the project is a small scale canal drop type hydroelectric project of capacity 5.2 MW.	OK
	Technology/measure as per the methodology	Validated situation						
1	<i>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.</i>	The team confirms from the review of documents and by means of on site visit, that the project is a small scale canal drop type hydroelectric project of capacity 5.2 MW.						

	Verified situation		Conclusion
	2	<i>If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.</i>	The team confirms from the review of documents and by means of on site visit that the project has only the renewable energy component and the aggregated capacity of the three sites is 5.2 MW which is less than 15MW.
	3	<i>Biomass combined heat and power (co-generation) systems that supply electricity to and/or displace electricity from a grid are included in this category. To qualify under this category, the sum of all forms of energy output shall not exceed 45 MW_{thermal}. E.g., for a biomass based co-generating system the rating for all the boilers combined shall not exceed 45 MW_{thermal}.</i>	The team confirms from the review of documents and by means of on site visit that the project is not a biomass power plant and hence this is not applicable.
	The team confirms that the project activity meets all the applicability criteria of the applied small scale methodology AMS I.D, Version 07.		
1.9. Confirm use or not use of public funding and determine if there is no diversion of ODA to the project activity.	In section A.4.4 of the registered PDD it has been stated that “the project proponents hereby confirm that public funding from parties included in Annex- I is not involved in the project activity”. The same was also validated and confirmed by the validating DOE. Moreover, the PP has submitted a declaration in this respect dated 17/01/2013.		OK
1.10. Check data in the MR and in the PDD. Describe data and variables that are different from that stated in the registered PDD and caused an increase in emission reductions estimations.	<p>The ex-ante fixed grid emission factor of 0.942 kg CO₂/kWh has been used for the baseline emission calculation which is line with the registered PDD.</p> <p>With reference to section E.6 of the webhosted MR version 01 dated 03/10/2012, it is stated that PP is claiming emission reductions from 01/08/2011 to 30/09/2012 (for a period of 14 months). As per the registered PDD, the estimated annual emission reductions are 26,961 tCO₂e. Thus for 14 month the estimated amount of emission reductions as per the registered PDD would be 31,454 tCO₂. It is evident that the number of achieved CERs (30,772 tCO₂) during this monitoring period are</p>		OK

	Verified situation	Conclusion
	less than the projected CERs (31,454 tCO ₂) for the same period. The power generation for hydro projects is dependent on the availability of water in the canal which is beyond the control of the PP. The lesser generation of electricity during the monitoring period, than the projected value at validation stage, is due to lesser availability of water in the canal.	
<p>1.11. By means of an on-site visit:</p> <p>Is the general information of the project provided in the Monitoring report and is it as registered by CDM-EB?</p> <p>List each technical component and equipment and check design parameters and actual status of installation and / or operation.</p> <p>Please check to ensure that all physical features of the proposed CDM project activity in the registered PDD are in place and the PP has operated the proposed CDM project activity as per the registered PDD.</p> <p>It may include but not limited to:</p> <ul style="list-style-type: none"> • the actual capacity and output • plant load factor • type of feedstock • operation of other components / units within the project boundary which could affect functioning of the project plant. <p>In cases where there are a large number of components and equipment items and the check of all of them is not an available option, then a random sampling check shall be performed. Justify here the sample chosen and describe the results.²</p>	<p>The registered PDD specifies that the project comprises 3 mini hydroelectric projects of total installed capacity 5.2 MW at Lohgarh, Chakbhai and Sidhana on the Bathinda branch canal in the state of Punjab in India. The individual capacities of the projects are 2.0 MW (1000 kW X 2) for Lohgarh, 2.0 MW (1000 kW X 2) for Chakbhai and 1.2 MW (1200 kW X 1) for Sidhana.</p> <p>All the three mini hydroelectric projects are canal drop type that consist of a forebay, mechanical intake gates, trash racks, draft tubes, vertical turbine and a power house with its discharge channel. The turbines installed are vertical Kaplan type with synchronous generators.</p> <p>During the on site visit, 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.</p> <p>No change from the registered PDD of physical features which may impact the emission reduction of the project activity has been identified. The verification team confirms all the physical features of the CDM project activity in the registered PDD are in place.</p>	OK
1.12. Have responsibilities for monitoring been described and specified?	Yes.	OK

² The sampling shall be in line with the "Standard for sampling and surveys for CDM project activities and programme of activities"

	Verified situation	Conclusion
	<p>The monitoring report and CDM documents clearly describe the responsibilities for monitoring and this has to be verified by the verification team during the on site visit through interviews.</p> <p>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 archive the project activity data.</p> <p>The Energy exported (kWh) and Energy imported (kWh) is measured and is used to calculate the Net saleable energy. Monthly joint meter readings are taken at interconnection point and certified by representatives of Aqua Power Private Limited (APPL) and Punjab State Electricity Board (PSEB). The joint meter readings are used to raise invoice for sale of net energy to PSEB and is the basis for ER calculation. The energy generated and the auxiliary electricity consumption is measured and recorded on hourly basis which are summed into daily readings and monthly readings.</p> <p>Monthly reports stating the energy exported, energy imported, energy generated and auxiliary energy consumption are prepared by shift-in-charge and verified by plant managers and are further checked by the finance department.</p>	
1.13. Are the responsibilities and authorities for monitoring and reporting in line with those stated in the registered monitoring plan?	<p>Yes.</p> <p>The responsibilities and authorities for monitoring and reporting are in line with the registered monitoring plan.</p>	OK
<p>1.14. Check QA/QC, management systems. Are procedures described and specified in the MR? Are they consistently applied as described in the MP?</p> <p>a. documented instructions, management manual</p> <p>b. documentation</p> <p>c. data archiving</p> <p>d. monitoring report</p> <p>e. cross-checking</p> <p>f. energy balance analysis (as relevant)</p> <p>g. internal audits / verification and management review</p>	<p>Yes.</p> <p>QA/QC procedures include staff training, instrument calibration, cross checking and emergency processing procedures and data/documents archiving. It is consistent with the monitoring plan.</p> <p>The Monitoring report describes the monitoring system, monitoring procedures, data collection and reporting, responsibilities of relevant staff/departments, calibrations that were implemented and QA/QC procedures including data cross checking.</p> <p>Verification team has checked information flow (from data generation, aggregation, to recording, calculation and reporting) for each of the monitoring parameters, including the values used for the emission reduction calculation from the project, which is mentioned below:</p>	OK

	Verified situation	Conclusion
	<p><u>Gross electricity generation:</u></p> <p>Energy generation by the individual turbines at all the three sites is measured by the respective energy meter on a continuous basis. Hourly readings are noted down by the Plant Shift Supervisor in the daily log sheets. Hourly readings are aggregated to give daily electricity generation.</p> <p><u>Auxiliary electricity consumption:</u></p> <p>Each site has one auxiliary meter which continuously monitors the electricity consumption in the plant by auxiliary components. The auxiliary consumption is recorded hourly by the shift supervisor in the daily log sheets. Hourly readings are aggregated to give daily auxiliary consumption.</p> <p><u>Export / Import electricity:</u></p> <p>Each site has one main meter installed (after step-up transformer) by PSEB to measure export and import of electricity by the plant on continuous basis. Joint Meter Readings (for export and import electricity) are recorded once every month (i.e. previous months opening reading and current month closing reading). The Joint Meters Readings are signed by PP, Executive Engineer (Punjab State Power Corporation Limited) and a representative from Billing Department of PSEB. The difference of export and import of electricity is the net electricity supplied to the grid for the respective month and this is the basis for raising invoice to PSEB by the PP and also for the ER calculations. During the on site visit, it was also noted that the PP maintains the daily readings of the net electricity exported to grid (i.e. export and import electricity readings of the main meter) in line with the registered PDD.</p> <p>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.</p>	
1.15. Have the procedures for emergency and abnormal situations been established?	Emergency procedures are established as per the registered PDD. However, it had not been captured in the published MR version 01. CAR 01 was raised in this respect and closed after appropriate revision in section C of the revised MR.	CAR-01 OK

	Verified situation	Conclusion	
	During the monitoring period, no emergency situation in monitoring had occurred.		
1.16. Has the system for qualification and training been established as relevant for the monitoring and management activities?	The training and qualification of the project personnel has been confirmed during interview of the operational personnel. It is confirmed that they have sufficient knowledge, experience and competency to implement and maintain the plant operation including data monitoring and recording in line with normal industrial norms and CDM requirements.	OK	
1.17. Check the environmental report, license, permit and compliance to the local environmental legislation (if relevant).	The verification team has confirmed that the project meets the relevant local environmental legislation. The verification team reviewed the copies of the consent to operate dated 14/03/2011, 10/08/2011 and 31/05/2011 for Chakbhai, Lohgarh and Sidhana sites respectively issued by Punjab State Pollution Control Board which were valid for the current monitoring period.	OK	
1.18. Check contribution to sustainable development, comparing those expected in PDD and the actual status.	The Project is supplying renewable power to the grid and has resulted in employment for local people, as confirmed during the site visit by the interviews with the local stakeholders, and thus contributing to sustainable development.	OK	
1.19. Check issues with local stakeholders, claims, complaints, etc.	No issues with local stakeholders were identified during the site visit.	OK	
1.20. If from the above assessment the conclusion is that the implementation or operation of the project activity does not conform with the description contained in the registered PDD and/or corrections have been made to project information or parameters fixed at validation, determine if these changes and/or corrections do not require prior approval by the board: <ul style="list-style-type: none">- Any corrections to project information of a registered CDM project activity that do not affect the design of the project activity do not require prior approval by the Board.- A request for approval is required if any of the three issues below is adversely impacted by the identified changes to the project design.			
1.21. The applicability and application of the applied methodology under which the project activity has been registered: Check if the project boundary has changed and if any of the parameters to assess the applicability conditions have changed.	The project activity still holds the applicability conditions of the applied methodology AMS I.D, version 07 during the registration. The project boundary and the applicability conditions have not changed.	YES	NO
		-	No
1.22. The additionality of the project activity:	There is no change in the project design parameters as the project is implemented	YES	NO

	Verified situation	Conclusion	
Check if any of the input parameters to the investment analysis have changed. For barrier analysis, check if any information or data used in the barrier analysis has changed.	as per the registered PDD.	-	No
1.23. The scale of the project activity. Check if the project is still small scale or large scale after the implementation of the changes.	The project activity is 5.2 MW renewable energy generation and supply electricity to grid. Hence the scale of the project activity is still small scale and is not changed.	YES	NO
		-	No
If the answer to any of the above items is YES, please conduct an assessment of the potential impacts of these changes following the Procedures for Post Registration Changes.			
1.24. If, from the above assessment, the conclusion is that the changes require prior approval by the EB in accordance with the PS, please check any approvals of the necessary request for approval of changes.	Not applicable	-	

	Verified Situation	Conclusion
SECTION 2. Compliance of the Monitoring Plan with the Monitoring Methodology including applicable Tool(s)		
2.1. Is the monitoring plan (registered or approved) in accordance with the applied methodology?	Yes. The monitoring plan is in accordance with the approved methodology AMS 1.D, Version 7.	OK
2.2. If the methodology provides different options (for example, use of default values or on-site measurements), has the Monitoring Report specified which option is used?	Yes. The project activity as per the registered PDD has selected the ex-ante option and the emission factor calculation results are fixed for the whole crediting period. The emission factor fixed ex-ante for the project has the value 0.942 kgCO ₂ e/kWh as per the registered PDD. Hence no uncertainty involved with the default values used for this reporting period.	OK
2.3. Is all data collected and archived according to the tables in the applied Monitoring Methodology and is this included in the Monitoring Plan?	Yes, all the data is collected and archived in accordance with the methodology and included in the monitoring plan. All the data will be archived until 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later. The data are archived manually and in electronic form.	OK
2.4. Check the calculation of emission reductions following the applied methodology: <ul style="list-style-type: none"> • baseline emissions • project emissions • leakage • emission reductions of the project. 	<p>The team confirms that the calculation of the emission reductions following the applied methodology has been correctly done.</p> <p><u>Base line emissions</u> As per the registered PDD and the applied methodology AMS 1.D, Version 07, the baseline is the energy supplied by the renewable generating unit (Net saleable energy) multiplied by the emission coefficient (Emission Factor of the grid).</p> <p>Baseline emission=Net saleable energy X Emission factor of the grid</p> <p>Net saleable Energy (kWh) by the project from 01/08/2011 to 30/09/2012 = Energy Exported (kWh) – Energy Imported (kWh) = 32,715,070 - 48,130 = 32,666,940 kWh.</p> <p>Emission factor of the grid (kgCO₂/kWh) = 0.942 kgCO₂/kWh, as calculated ex-ante in the registered PDD and will be fixed during the crediting period).</p> <p>Hence the baseline emission=(326666940 X 0.942)/1000 = 30,772 tCO₂e</p>	OK

	Verified Situation	Conclusion
	<p><u>Project emissions</u></p> <p>The registered PDD states that “There would be no GHG emissions of any kind, due to project activity within the project boundary as it is a canal drop based project producing clean energy with no storage of water”. The verification team confirmed that the project activity is a canal drop based power project and does not result in any fossil fuel consumption at site. Furthermore, the electricity imports are accounted in the net electricity exported which is used for calculating the emission reductions. Hence project emissions are nil.</p> <p><u>Leakage emissions</u></p> <p>As per the paragraph 8 of the applied small scale methodology AMS 1.D, version 07, leakage emissions are to be considered only if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. The MR states that the energy equipment is not transferred from or to any other activity and hence the leakage emissions are not considered. The verification verified during site visit interview with the representatives of the PP that the new hydro turbines installed at the time of commissioning of the project were running at the three sites and have not been changed since then.</p> <p>Since the project emission and the leakage emissions are nil, the emission reduction by the project activity is the same as the baseline emissions.</p> <p>Hence the emission reductions or GHG removals by project activity during the current monitoring period = 30,772 tCO₂e</p>	
<p>2.5. List any monitoring aspect that is not specified in the methodology and check its compliance with the Monitoring Plan, for example:</p> <ul style="list-style-type: none"> • additional monitoring parameters • monitoring frequency • calibration frequency. 	<p>No additional monitoring parameter is identified that is not specified in the approved methodology and the registered PDD available in the project page in UNFCCC website.</p> <p>Monitoring frequency and the calibration frequency specified are not less than the requirements of the approved methodology and the monitoring plan in the registered PDD.</p>	OK

	Verified Situation	Conclusion
SECTION 3. Compliance of Monitoring activities with the registered Monitoring Plan		
<p>3-1. Is the Monitored Data included in the Monitoring Report as per the Monitoring Plan or any accepted revised MP?</p> <p>3-2. Has the data been generated at the frequency required by the Monitoring Plan or any accepted revised MP?</p>	<p>The monitoring plan in the registered PDD requires monitoring of the energy exported to the grid, the energy imported from the grid, the net saleable energy, the energy generated and the auxiliary energy consumption during the monitoring period. The values are indicated appropriately in the section D.2 of the Monitoring report against the corresponding parameters as per the registered PDD.</p> <p>The verification team confirms that the data were generated at the required frequency as per the monitoring plan in the registered PDD.</p> <p>However, CAR 03 was raised due to the following discrepancies found in section D.2 of the published MR version 01:</p> <ul style="list-style-type: none"> i) Incorrect alignment of cells ii) Mention of incorrect source of data iii) Details of check meters not provided iv) Data archiving procedure not stated <p>The CAR was closed after appropriate revision in the MR; the resolution is detailed in the finding section of the report.</p>	CAR-03 OK
<p>3-3. Has the monitoring been implemented in accordance with the monitoring plan contained in the registered PDD or any accepted revised MP?</p> <p>Confirm that the monitoring and reporting procedures have been implemented as documented and follow by PPs.</p>	<p>Yes.</p> <p>Electrical energy exported and imported by the project activity is measured continuously using bi directional tri-vector energy meters installed. The monthly joint meter readings are taken and signed by the officials of APPL and PSEB. These readings form the basis for billing and ER calculations.</p> <p>Electricity generated and auxiliary consumption are monitored continuously and recorded hourly in the log books by the shift in charge for all the three sites. These data are compiled to generate daily and monthly data which is cross verified by plant manager.</p>	OK

	It was confirmed during the site visit from the log sheets that daily and monthly recording of the monitoring parameter as required in the registered monitoring plan is done correctly. It was confirmed that the information of the meters as described in the Monitoring report are as per the monitoring plan.	
3-4. Have types of measurement instrumentation used been described and specified?	<p>Yes, section C of the webhosted MR version 01 dated 03/10/2012 has described types of measurement instrumentation used. As per the registered PDD, the accuracy class of the meters used to monitor the energy exported and imported would be of 0.5.</p> <p>The verification team confirmed through on site visit and the review of evidence that the installation of the measuring devices has been completed and the equipment has been operated and maintained in a normal operating condition. The accuracy class of the main meters and the check meters used for monitoring the electricity exported and imported was found to be of 0.5. Accuracy class of the generation meters used for monitoring the electricity generated and the auxiliary consumption meters for all the three sites were found to be 1.0 except the accuracy class for Sidhana site generation meter as 0.5. The verification team confirms that the installed meters for measurement and monitoring is in agreement with that are stated in the registered monitoring plan.</p> <p>However, CL 02 was raised as in section D.2 of the MR version 01, PP had stated incorrect accuracy class of the generation meter and auxiliary meter for Sidhana site.</p> <p>The CL was closed after appropriate revision in the MR; the resolution is detailed in the finding section of the report.</p>	CL-02 OK
<p>3-5. Is the accuracy of equipment used for monitoring sufficient and regularly controlled and calibrated in line with the registered monitoring plan or any accepted revised MP?</p> <p>Check relevance of maintenance and calibration included in the monitoring plan.</p> <p>Check relevance of laboratory analysis if included in the monitoring plan.</p>	<p>With reference to section C of the webhosted MR version 01 dated 03/10/2012, it is confirmed that the accuracy of equipment used for monitoring is sufficient and regularly controlled and calibrated in line with the registered monitoring plan.</p> <p>The main and check meters for all the three sites were calibrated every six months by MMTS (Meter Mobile Testing Squad), a division of PSEB (Punjab State Electricity Board). PSEB is statutory body under the Indian Electricity Act 1948 and owned by the Government of Punjab and hence deemed to be competent.</p> <p>The generation meters and auxiliary meters were calibrated every six months by Bharati Automation Private Limited / 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.</p>	OK

	The verification team confirms that there is no relevance of laboratory analysis included in the monitoring plan as per the registered PDD.	
<p>3-6. Check that responsibilities and authorities for monitoring and reporting are in line with the monitoring plan.</p> <p>Are the monitoring results consistently recorded, reviewed and approved as stated in the PDD or any accepted revised MP?</p>	<p>Yes</p> <p>During the site visit, monitoring and reporting procedures were confirmed by the verification team through interview with the relevant staff and by document review. The monitoring results were consistently recorded, reviewed and approved as stated in the registered PDD.</p> <p>However, CAR 04 was raised due to mismatch of data for the total generation for Chakbhai site reported in Annexure I and auxiliary consumption for Sidhana site for the month October 2011 in Annexure II of the published MR version 01 as verified during the on site visit and review of the documents.</p>	CAR-04 OK
<p>3-7. Reporting period: Defined?</p> <p>If a monitoring period of a parameter more / less than a year is applied, check if the monitoring is in a complete and consistent manner?</p>	<p>The monitoring period applied is from 01/08/2011 to 30/09/2012 (both days inclusive).</p> <p>The monitoring period is more than a year (14 months) and the verification team by means of review of the emission reduction sheet and monitoring records such as monthly joint meter reading records and hourly electricity generation and auxiliary consumption records, confirms that the monitoring is done in a complete and consistent manner.</p> <p>However, CAR 05 was raised as the end dates for the JMR held in the month of September 2012 did not correspond to the end date of monitoring period as below: Sidhana: 01 Oct 12 Lohgarh: 29 Sept 12 Chakbhai: 29 Sept 12</p> <p>In response, PP clarified that this monitoring period is until 30/09/2012. The JMRs for the month of September 2012 for Lohgarh and Chakbhai sites were taken on 29/09/2012 and for Sidhana site on 01/10/2012. As this monitoring period is till 30/09/2012, JMRs and emission reductions are considered till 29/09/2012 for Lohgarh and Chakbhai sites which is within the end date of monitoring period and non consideration of data for 30/09/2012 is conservative. For the Sidhana site, the last JMR was taken on 01/10/2012 morning hours. But to avoid any confusion, PP has discounted the last day power exported to grid so that no electricity figures of 01/10/2012 are considered in the emission reduction calculation for this monitoring period. The one day electricity is deducted based on the daily meter readings of</p>	CAR-05 OK

	<p>the main meter (export/ import meter) maintained at the plant site (i.e. the meter reading on 30/09/2012 is taken as the closing reading). Hence all the JMRs considered are within the monitoring period.</p> <p>The verification team noted that for Lohgarh and Chakbhai sites the end date of JMRs is 29/09/2012 which is within the monitoring period end date and hence deemed conservative and acceptable. For the Sidhana site, as the JMR was taken on 01/10/2012 morning hours, some part of the energy exported is for 01/10/2012 which is beyond the end date of the monitoring period. Hence PP has discounted one day's electricity based on the daily records maintained at the plant site. The verification team has verified that the PP maintains the daily export/import electricity data based on the Main meter (used for monthly JMRs) at the plant site in accordance with the registered monitoring plan. The team further verified that the monthly aggregated values of the daily export and import electricity as maintained by the PP matched with the monthly JMRs for the whole monitoring period. Hence the exclusion of electricity export value for 01/10/2012³ (5,260 kWh) for the Sidhana site based on the daily plant records recorded at the same time as the JMR is deemed acceptable and conservative in line with paragraph 214 and 215 of VVS. PP has submitted the revised MR and ER spread sheet. In response to this CAR and subsequent revision in the MR and ER spread sheet, ER has been reduced from 30,777 tCO₂ to 30,772 tCO₂. Hence the CAR is closed.</p> <p>Furthermore, the verification team raised FAR 01 so as to ensure that there is no double counting of net electricity exported in the subsequent periodic verification.</p>	
3-8.If the monitoring plan includes the determination of environmental and / or social indicators, have the sustainable development indicators been monitored in accordance with the registered monitoring plan?	Not Applicable.	-
<p>3-9.Check monitoring of Environmental and Social indicators (if relevant)</p> <ul style="list-style-type: none"> • implementation of measures • monitoring equipment • quality assurance procedures • external data. 	Not Applicable.	-

³ There was no electricity import for Sidhana site on 01/10/2012

	Verified Situation	Conclusion	
SECTION 2 and 3: Post Registration Changes			
3-10. If, from the above assessment in SECTIONS 2 and 3, the conclusion is that there are temporary deviations or permanent changes from the registered Monitoring Plan or Monitoring Methodology, determine if these deviations or changes require prior approval by the EB by answering the questions below. All the answers to the applicable questions below shall be explained and the reasons for each conclusion given in the "Verified situation" column.			
Temporary deviations from the registered monitoring plan or applied methodology: Prior approval by the EB is <u>not</u> required if the answer to the applicable questions below is YES.			
3-11. Have the PPs reported as zero any parameter related to baseline GHG emissions that they have temporarily failed to monitor or for which they are unable to produce evidence related to such monitoring?	Not applicable	YES	NO
		-	-
3-12. Have the PPs estimated (assuming that the source of the GHG emissions operated at maximum capacity for the full period of the missing data) any parameter that they have temporarily failed to monitor or for which they are unable to produce evidence related to such monitoring?	Not applicable	YES	NO
		-	-
For project GHG emissions related to the consumption of electricity, the estimate shall include an addition of 10% to account for transmission and distribution losses.			
Permanent changes from the registered monitoring plan or applied methodology			
If the monitoring equipment actually installed has a lower accuracy level than the accuracy stipulated in the applied methodology and/or in the registered monitoring plan, and the monitoring equipment is under the control of the project participants, prior approval by the EB is <u>not</u> required if the answer to the applicable questions below is YES:			
3-13. Have the PPs deducted from the measured	Not applicable	YES	NO

	Verified Situation	Conclusion	
value, for any parameter used for calculating baseline GHG emissions, the difference between the accuracy level of the installed monitoring equipment and the accuracy prescribed by the applied methodology and/or the registered monitoring plan?		-	-
3-14. Have the PPs added to the measured value, for any parameter used for calculating project GHG emissions, the difference between the accuracy level of the installed monitoring equipment and the accuracy prescribed by the applied methodology and/or the registered monitoring plan?	Not applicable	YES	NO
		-	-
Changes to the monitoring of the registered CDM project activity of a type listed below do not require approval by the EB. Confirm in the conclusion column that the change is of the type in the table below and explain the reasons.			
3-15. Change of calibration frequency or practice for monitoring equipment not within the control of project participants	Not applicable	-	
3-16. Change of accuracy / type / model of meter(s) as per a power purchase agreement (PPA)	Not applicable	-	
3-17. Change of location of meter(s) as per a power purchase agreement (PPA)	Not applicable	-	
If the answer to any of the above items has been that approval from the EB is required, please conduct an assessment of the potential impacts of these changes following the Procedures for Post Registration Changes.			
3-18. If, from the above assessment, the conclusion is that the temporary deviations or permanent changes require prior approval by the EB in accordance with the PS, please check any approvals of the necessary request for approval of changes.	Not Applicable	-	

3.19 Monitoring Parameters and Calibration Checklist:

Complete the following table for each parameter:

Data / Parameter (as in the MP)		Energy Exported-The electricity exported by the project activity to the grid in kWh		Energy Imported- The electricity imported by the project activity from the grid in kWh			
Value	Ex ante	-		-			
	Ex-post	Total:32,715,070 kWh Chakbhai: 14,303,700 kWh, Lohgarh:12,049,850 kWh and Sidhana: 6,361,520 kWh		Total:48,130 kWh Chakbhai: 10,890 kWh, Lohgarh: 13,020 kWh and Sidhana: 24,220 kWh			
Measuring frequency		Continuous monitoring		Continuous monitoring			
Reporting frequency		Monthly		Monthly			
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes		Yes			
Recording (Manually / electronically / ...)		Manually and Electronically		Manually and Electronically			
QA/QC How are values verified? (Cross-checked, double-checked,...)		Meters are calibrated once in 6 months. Power exported by the project, which is data source for CER calculation, is taken from the monthly reports (JMRs). The readings are cross checked with the monthly energy sales bills.		Meters are calibrated once in 6 months. Power imported by the project, which is data source for CER calculation, is taken from the monthly reports (JMRs). The readings are cross checked with the monthly energy sales bills.			
Type of Monitoring Equipment and Identification number or Reference in the PDD		Bi directional Electronic Tri-vector meters (Energy Meters for export and import) installed at the grid-interconnection point to measure the amount of electricity supplied to the grid by the project.		Bi directional Electronic Tri-vector meters (Energy Meters for export and import) installed at the grid-connected point to measure the amount of electricity received from the grid by the project.			
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Yes. Accuracy of both main meters and check meters is 0.5 in line with the registered PDD.		Yes. Accuracy of both main meters and check meters is 0.5 in line with the registered PDD.			
Period of operating time		01/08/2011 to 30/09/2012		01/08/2011 to 30/09/2012			
Instrument type		Electronic Bidirectional meter (L & T)		Electronic Bidirectional meter (L & T)			
Manufacturer, model and serial number		Manufacturer - L&T		Manufacturer - L&T			
		Serial numbers:		Serial numbers:			
			Main meter	Check meter		Main meter	Check meter
		Lohgarh	11059669	11059670	Lohgarh	11059669	11059670
		Chakbhai	04187462	04187461	Chakbhai	04187462	04187461
	Sidhana	05271089	04223082	Sidhana	05271089	04223082	

Data / Parameter (as in the MP)	Energy Exported- The electricity exported by the project activity to the grid in kWh	Energy Imported- The electricity imported by the project activity from the grid in kWh
Specific location	Main meters are installed at the respective project sites (after 6.6 kV/11kV transformer) and the check meters are installed at the respective PSEB sub stations of the projects	Main meters are installed at the respective project sites (after 6.6 kV/11kV transformer) and the check meters are installed at the respective PSEB sub stations of the projects
Calibration dates	Calibration dates and validity (for both main and check meters): Lohgarh: 16/03/2011 valid till 15/09/2011 26/08/2011 valid till 25/02/2012 24/02/2012 valid till 23/08/2012 22/08/2012 valid till 21/02/2013 Chakbhai: 10/05/2011 valid till 09/11/2011 07/11/2011 valid till 06/05/2012 17/04/2012 valid till 16/10/2012 Sidhana: 05/03/2011 valid till 04/09/2011 31/08/2011 valid till 02/03/2012 29/02/2012 valid till 28/08/2012 17/08/2012 valid till 16/02/2013	Calibration dates and validity (for both main and check meters): Lohgarh: 16/03/2011 valid till 15/09/2011 26/08/2011 valid till 25/02/2012 24/02/2012 valid till 23/08/2012 22/08/2012 valid till 21/02/2013 Chakbhai: 10/05/2011 valid till 09/11/2011 07/11/2011 valid till 06/05/2012 17/04/2012 valid till 16/10/2012 Sidhana: 05/03/2011 valid till 04/09/2011 31/08/2011 valid till 02/03/2012 29/02/2012 valid till 28/08/2012 17/08/2012 valid till 16/02/2013
Company performing the calibration	Punjab State Electricity Board	Punjab State Electricity Board
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Once in 6 months which is in line with the MP	Once in 6 months which is in line with the MP
Is calibration valid for the whole reporting period?	Yes	Yes
Maintenance	The meters are under sealed conditions and remain under the custody of PSEB. The meters have functioned well during the monitoring period.	The meters are under sealed conditions and remain under the custody of PSEB. The meters have functioned well during the monitoring period.
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	Yes
Key reporting risks	Low risk. The meters are also the resettlement meter for the grid company and the PP. It was installed, maintained and calibrated according to the relevant industry standard.	Low risk. The meters are also the resettlement meter for the grid company and the PP. It was installed, maintained and calibrated according to the relevant industry standard.

Data / Parameter (as in the MP)	Net Saleable Energy -The net electricity exported by the project activity to the grid in kWh
Value	Ex ante
	-

Data / Parameter (as in the MP)		Net Saleable Energy -The net electricity exported by the project activity to the grid in kWh
	Ex-post	Total: 32,666,940 kWh Chakbhai: 14,292,810 kWh, Lohgarh:12,036,830 kWh and Sidhana: 6,337,300 kWh
Measuring frequency		The data is calculated as the difference of measured export and import energy
Reporting frequency		Monthly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes
Recording (Manually / electronically / ...)		Manually and Electronically
QA/QC How are values verified? (Cross-checked, double-checked,...)		The data is calculated from Energy exported and Energy imported. Net power supplied by the project, which is data source for CER calculation, is taken from the monthly reports (JMRs). The readings are cross checked with the monthly energy sales bills.
Type of Monitoring Equipment and Identification number or Reference in the PDD		Not Applicable since the data is calculated.
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Not applicable
Period of operating time		01/08/2011 to 30/09/2012
Instrument type		Not applicable
Manufacturer, model and serial number		Not applicable
Specific location		Not applicable
Calibration dates		Not applicable
Company performing the calibration		Not applicable
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?		Not applicable
Is calibration valid for the whole reporting period?		Not applicable
Maintenance		Not applicable
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?		Yes
Key reporting risks		Low risk. It is based on calculations and transpositions errors are cross checked at each entry.

Data / Parameter (as in the MP)		Energy generated-The gross electricity generated by the project activity in kWh	Auxiliary Energy Consumption- The electricity used by the project activity for running the plant in kWh
Value	Ex ante	-	-
	Ex-post	Total:33,495,030 kWh Chakbhai: 14,589,806 kWh Lohgarh:12,393,594 kWh Sidhana: 6,511,630 kWh	Total:388,706 kWh Chakbhai: 129,125 kWh Lohgarh: 148,842 kWh Sidhana: 110,739 kWh
Measuring frequency		Continuous monitoring	Continuous monitoring
Reporting frequency		Hourly	Hourly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes	Yes
Recording (Manually / electronically / ...)		Manually and Electronically	Manually and Electronically
QA/QC How are values verified? (Cross-checked, double-checked,...)		Energy generated at each of the three sites is measured by duly calibrated energy meters at a frequency of 6 months.	Auxiliary energy consumed at each of the three sites is measured by duly calibrated energy meters at a frequency of 6 months.
Type of Monitoring Equipment and Identification number or Reference in the PDD		Energy meters	Energy meters
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Accuracy of the generation meters have not been stated in the PDD. It is +/-1% for Lohgarh and Chakbhai sites and +/-0.5% for Sidhana site. Verification team confirms that this represents good monitoring practices.	Accuracy of the auxiliary meters have not been stated in the PDD. It is +/-1% for each of the three sites. Verification team confirms that this represents good monitoring practices.
Period of operating time		01/08/2011 to 30/09/2012	01/08/2011 to 30/09/2012
Instrument type		Energy meters	Energy meters
Manufacturer, model and serial number		<u>Make and model</u> Minsun, Digital Power Meter 882-332 for Lohgarh and Chakbhai and Enercon EM 6400 for Sidhana <u>Serial numbers</u> Lohgarh-Unit1:6851013, Unit 2:68B0512, Chakbhai-Unit 1: 6851001, Unit 2 : 6790517, Sidhana-66927/3665-0605	<u>Make and model</u> Enercon , EM 6400 <u>Serial numbers</u> Lohgarh-56248/1285-3404, Chakbhai- E 64/1640-903, Sidhana-148153/13538-1608
Specific location		Meters are installed at the respective project sites	Meters are installed at the respective project sites
Calibration dates		Calibration date and validity: Lohgarh, Chakbhai and Sidhana: 13/05/2011 valid till 12/11/2011 12/11/2011 valid till 11/05/2012 03/05/2012 valid till 02/11/2012	Calibration date and validity: Lohgarh, Chakbhai and Sidhana: 13/05/2011 valid till 12/11/2011 12/11/2011 valid till 11/05/2012 03/05/2012 valid till 02/11/2012

Data / Parameter (as in the MP)	Energy generated- The gross electricity generated by the project activity in kWh	Auxiliary Energy Consumption- The electricity used by the project activity for running the plant in kWh
Company performing the calibration	On 13/05/2011 by Bharati Automation Private Limited On 12/11/2011 and 03/05/2012 by Advance Control System	On 13/05/2011 by Bharati Automation Private Limited On 12/11/2011 and 03/05/2012 by Advance Control System
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Once in 6 months which is in line with the MP	Once in 6 months which is in line with the MP
Is calibration valid for the whole reporting period?	Yes	Yes
Maintenance	The meters were well running during the monitoring period	The meters were well running during the monitoring period
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	Yes
Key reporting risks	Low risk.	Low risk.

	Verified situation	Conclusion
SECTION 4. Compliance with the calibration frequency requirements for measuring instruments		
The “Monitoring Parameters and Calibration Checklist” in section 3 above shall be checked to determine if the calibration frequency specified in the applied monitoring methodology and/or monitoring plan is followed in the monitoring report and in the monitoring activities. Where a failure to comply with the required frequency is detected, or no frequency is mentioned in the monitoring report, please follow the checklist below:		
<p>4-1. If the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (that is, the results of delayed calibration are available), confirm that the following conservative approach has been adopted in the calculation of emission reductions:</p> <ul style="list-style-type: none"> - If the delayed calibration did not show any errors in the measuring equipment, or the error was smaller than the maximum permissible error, have the PPs applied the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration? - If the delayed calibration identified an error greater than the maximum permissible error, have the PPs applied the error identified in the delayed calibration test to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration? <p>Confirm that the error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer emission reductions being claimed;</p>	Not Applicable	NA

	Verified situation	Conclusion
<p>4-2. If the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification:</p> <ul style="list-style-type: none"> a. Request the PPs to conduct the required calibration; b. On receipt of the calibration results, determine whether the PPs have calculated the emission reductions conservatively using the approach mentioned in section 4.1 above. 	Not Applicable.	NA
<p>4-3. If it is not possible for the PPs to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of the PPs, check if the PPs have prepared a temporary deviation or a 'Permanent changes from the monitoring plan and/or monitoring methodology application'.</p> <p>Follow the requirements for post registration changes in sections 3.10 to 3.19 above.</p>	Not Applicable.	NA
<p>4-4. If neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipment, determine whether the equipment is calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification. If neither local/national standards nor the manufacturer's specification are available, international standards may be used.</p>	Not Applicable.	NA

	Verified situation	Conclusion
SECTION 5. Assessment of data and calculation of emission reductions		
<p>5-1. Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, been carried out in line with the formulae and methods described in the monitoring plan and the applied methodology document?</p> <p>Check consistency in the ERs spreadsheet.</p>	<p>Yes</p> <p>According to the registered PDD and the Monitoring report, the baseline emissions for the project activity for the period 01/08/2011 to 30/09/2012 have been calculated as,</p> <p>Baseline emission=Net saleable energy X Emission factor of the grid</p> <p>Net saleable Energy (kWh) by the project from 01/08/2011 to 30/09/2012 = Energy Exported (kWh) – Energy Imported (kWh) = 32,715,070 - 48,130 = 32,666,940 kWh. The team confirms that the calculation of Net saleable energy for this monitoring period is accurate and conservative.</p> <p>Emission factor of the grid (kCO₂/kWh) = 0.942 kCO₂/kWh, as calculated ex-ante in the registered PDD and will be fixed during the crediting period and is thus applicable for this monitoring period.</p> <p>Hence the baseline emission=(32666940 X 0.942)/1000 = 30,772 tCO₂e</p> <p>As stated above in section 2.4 above, project emissions and leakage have been considered as nil for this project activity.</p> <p>Hence ER = BE_y = 30,772 tCO₂e</p> <p>The verification team has checked and confirmed the calculation in the ER spreadsheet is correct.</p>	OK
<p>5-2. Has the calculation tool been correctly documented? Check its consistency and formulae.</p> <ul style="list-style-type: none"> • baseline emissions • project emissions • leakage • emission reductions of the project. 	<p>The monitoring report is supported by and Micro Soft excel based spreadsheet for the calculation of emission reductions. The consistency and formula were verified and found to be accurate.</p>	OK

	Verified situation	Conclusion
<p>5-3. Is a complete set of data available during the specified monitoring period? If only partial data is available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan proceed as follows:</p> <ol style="list-style-type: none"> Check if sections 3.11 and/or 3.12 above are applicable and raise a CAR for the PPs to comply with these requirements. If sections 3.11 and 3.12 are not applicable or the answer to this question remains NO, a request for deviation is necessary. <p>Conduct an assessment of the potential impacts of these changes in accordance to the procedures for Post Registration Changes.</p>	No partial data is available and a complete set of data is available for this monitoring period.	OK
<p>5-4. Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?</p> <p>Please describe how LRQA has cross-checked reported data.</p>	<p>The verification team confirmed the monitored data from the monthly Joint Meter Reading reports and cross checked with the following sources:</p> <ol style="list-style-type: none"> Daily plant log Book Hourly generation sheets Invoices raised for the sale of electricity Monthly Summarised sheets (Electronic format) <p>All the above documents are referenced in section 7.1 of this report.</p>	OK
5-5. Have any assumptions used in emission calculations been justified?	No assumptions have been used for the emission reduction calculation.	OK
5-6. Have appropriate emission factors, IPCC default values, and other reference values been correctly applied?	The emission factor has been determined ex- ante in the registered PDD and will not change during the entire crediting period.	OK

Findings⁴

1. Grade / Ref:	CAR 01	2. Date:	16/01/2013	3. Status:	Closed
4. Requirement	Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20				
5. Nature of the Issue Raised:	The description of the installed technology (ies), technical process and equipment, including diagrams are not provided in section A.1 of the MR version 01 dated 03/10/2012 in line with the Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20. Also the project boundary diagram in section B.1 of the MR and emergency procedure in section C of the MR have not been provided in line with the registered PDD.				
6. Nature of responses provided by the project participants:	The description of the installed technology (ies), technical process and equipment have been provided in section A.1 of revised MR. Project boundary diagram has been included in section B.1 in revised MR. Emergency procedure has been stated in section C of the revised MR.				
7. Assessment of such responses:	The details of the equipments such as the turbines and generator and the components of each unit such as the power house, draft tube, Forebay, tailrace and switchyard have been provided in the revised MR section A.1. The team confirm the correctness of the details by review of the commissioning documents and the interaction during site visit. Project boundary diagram has been included in the revised MR and the team confirm that the diagram is in line with the registered PDD and the applied methodology. The established emergency procedure in line with the registered PDD has been included in the revised MR. The team confirms the correctness of the revision by the interaction with the operational staff during the site visit. As the MR has been revised appropriately, the CAR is closed.				
8. References to resulting changes in the monitoring report or supporting annexes:	Sections A.1, B.1 and C of MR				

1. Grade / Ref:	CAR 02	2. Date:	16/01/2013	3. Status:	Closed
4. Requirement	Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20				

⁴ Explanation of the Findings Log structure:

1. Grading and Sequential Number of the finding Workbook	2. Date of Original Finding	3. New, Open, Closed	4. Requirement (VVS, PDD-CDM, etc)	5. Reference to
6. Details of PP's response	7. Evaluation from the Verification team		8. List of changes made as a result of the finding	

5. Nature of the Issue Raised:	
Name of the PP as stated on page 1 of the published MR does not match with that available on the project page on UNFCCC site for the project activity. As per the project page of the project activity on UNFCCC web site, Annex I PP is involved in this project activity. But in section A.3 of the published MR only host PP has been stated.	
6. Nature of responses provided by the project participants:	
Name of PP corrected In revised MR and also Annex I PP has been stated.	
7. Assessment of such responses:	
As per the project page in the UNFCCC website, the PP from Annex I country is "EDF Trading Limited" from "United Kingdom of Great Britain and Northern Ireland". The team confirm that the correct name of the host country PP along with the Annex I PP have been stated in the revised MR in line with the project page on web site of UNFCCC. Hence the CAR is closed.	
8. References to resulting changes in the monitoring report or supporting annexes:	
MR covering page and section A.3	

1. Grade / Ref:	CAR 03	2. Date:	16/01/2013	3. Status:	Closed
4. Requirement	Guideline for Completing the Monitoring Report Form (version 02.0)				
5. Nature of the Issue Raised:	Following corrective actions are required for section D.2 of the MR: i) For all the monitoring parameters in section D.2 of the published MR, the alignment of the cells in the tables (like “Monitoring equipment”, “Measuring frequency”, etc.) are incorrect. ii) “Source of data” for all the meters as stated in the MR is incorrect. iii) Details of the check meters used for monitoring export and import energy have not been provided in the MR. iv) Data archiving has not been explained in the MR.				
6. Nature of responses provided by the project participants:					
i) Alignment of cell in section D.2 has been revised in the MR. ii) Source of Data has been corrected in the revised MR. iii) Details of check meters have been added in revised MR section D.2. iv) Data archiving has been stated in the revised MR.					
7. Assessment of such responses:					
Section D.2 of the MR has been revised wherein alignment of the cells have been corrected. “Source of data” have been corrected. details of the check					

meters have been provided and the data archiving has been explained. Hence the CAR is closed.	
8. References to resulting changes in the monitoring report or supporting annexes:	
Section D.2 of MR	

1. Grade / Ref:	CAR 04	2. Date:	16/01//2013	3. Status:	Closed
4. Requirement	Paragraph 217 (b) (iv) of the VVS version 3.0				
5. Nature of the Issue Raised:	The total generation for Chakbhai site reported in Annexure – I and auxiliary consumption for Sidhana site for the month October 2011 in Annex II of the published MR are incorrect.				
6. Nature of responses provided by the project participants:	The total generation for Chakbhai site reported in Annexure – I and auxiliary consumption for Sidhana site for the month October 2011 have been corrected in revised MR.				
7. Assessment of such responses:	The total generation for Chakbhai site and auxiliary consumption for Sidhana site for October 2011 have been corrected in the revised MR. Hence the CAR is closed.				
8. References to resulting changes in the monitoring report or supporting annexes:	Annexure I and Annexure II of MR				

. Grade / Ref:	CAR 05	2. Date:	05/03/2013	3. Status:	Closed
4. Requirement	Paragraphs 209 and 220 (c) of VVS, version 03.0				
5. Nature of the Issue Raised:	<p>Whilst the monitoring period for the 6th periodic verification ends on 30/09/2012, the JMRs being referred for the month of September 2012 ends as below:</p> <ol style="list-style-type: none"> 1. Sidhana: 01 Oct 12 2. Lohgarh: 29 Sept 12 3. Chakbhai: 29 Sept 12 <p>PP needs to justify how the data (in particular for Sidhana site) used for emission reduction calculation are within this monitoring period .</p>				
6. Nature of responses provided by the project participants:	<p>This monitoring period is until 30/09/2012. The JMRs for the month of September 2012 for Lohgarh and Chakbhai sites were taken on 29/09/2012 and for Sidhana site on 01/10/2012. As this monitoring period is till 30/09/2012, JMRs and emission reductions are considered till 29/09/2012 for Lohgarh and Chakbhai sites which is within the end date of monitoring period and non consideration of data for 30/09/2012 is conservative. For the Sidhana site, the last JMR was taken on 01/10/2012 morning hours. But to avoid any confusion, PP would like to discount the last day power exported to grid so that no electricity</p>				

figures of 01/10/2012 are considered in the emission reduction calculation for this monitoring period. The one day electricity is deducted based on the daily meter readings of the main meter (export/ import meter) maintained at the plant site (i.e. the meter reading on 30/09/2012 is taken as the closing reading). Hence all the JMRs considered are within the monitoring period. The revised PDD and ER spread sheet being submitted.

7. Assessment of such responses:

The verification team confirmed that for Lohgarh and Chakbhai sites, the JMRs were taken on 29/09/2012 which is before the end date of the monitoring period which is conservative and hence deemed acceptable. In case of the Sidhana site, as the JMR was taken on 01/10/2012 morning hours, some part of the energy exported is for 01/10/2012 which is beyond the end date of the monitoring period. Hence PP has discounted one day's electricity based on the daily records maintained at the plant site. The verification team has verified that the PP maintains the daily export/import electricity data based on the Main meter (used for monthly JMRs) at the plant site. The team further verified that the monthly aggregated values of the daily export and import electricity as maintained by the PP matched with the monthly JMRs for the whole monitoring period. Hence the exclusion of electricity export value for 01/10/2012⁵ (5,260 kWh) for the Sidhana site based on the daily plant records recorded at the same time as the JMR is deemed acceptable and conservative in line with paragraph 214 and 215 of VVS. PP has submitted the revised MR and ER spread sheet. In response to this CAR and subsequent revision in the MR and ER spread sheet, ER has been reduced from 30,777 tCO₂ to 30,772 tCO₂. Hence the CAR is closed.

8. References to resulting changes in the monitoring report or supporting annexes:

ER spread sheet and MR

1. Grade / Ref:	CL 01	2. Date:	16/01/2013	3. Status:	Closed
4. Requirement	Section A.2 of Guideline for Completing the Monitoring Report Form (version 02.0)				
5. Nature of the Issue Raised:	Latitude and longitude of the three sites provided in the MR do not match when cross checked with the google earth web site.				
6. Nature of responses provided by the project participants:	Latitude and longitude of the three sites have been corrected in revised MR				
7. Assessment of such responses:	GPS co-ordinates of the three project sites have been corrected in the revised MR. The team confirm the correctness of the geographical coordinates after reviewing in "Google earth", a web based software application. Hence the CL is closed.				
8. References to resulting changes in the monitoring report or supporting annexes:	A.2 of MR				

1. Grade / Ref:	CL 02	2. Date:	16/01/2013	3. Status:	Closed
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⁵ There was no electricity import for Sidhana site on 01/10/2012

4. Requirement	Paragraph 272 of the VVS version 3.0
5. Nature of the Issue Raised:	
Accuracy class of the generation meter and the auxiliary meter for Sidhana site as stated in the published MR do not match with those verified during the on site visit.	
6. Nature of responses provided by the project participants:	
Accuracy class of the generation meter and the auxiliary meter for Sidhana site as stated in the published MR are corrected In revised MR.	
7. Assessment of such responses:	
Accuracy class of the generation meter has been revised to 0.5 and for auxiliary meter to 1.0. Verification team confirmed the accuracy class of the meters during the site visit. Hence the CL is closed.	
8. References to resulting changes in the monitoring report or supporting annexes:	
Section D.2 of MR	