

Verification and Certification Report

Initial & first periodic verification

Report for:

GEPIIC Darong Electric Power
Company Ltd

Verification of CDM project for
Bailongjiang Shuiboxia Hydropower Station
(UNFCCC Ref 2866)

Monitoring Period:
21/12/2009 to 29/05/2010

LRQA Reference	: A20070B version 2.5
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1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by GEPIC Darong Electric Power Company Ltd., representing the project participants (PP), to undertake the initial and first periodic verification of the registered project activity "Bailongjiang Shuiboxia Hydropower Station" project reference number 2866 covering the monitoring period from 21/12/2009 to 29/05/2010. The verification has been performed by document review based on the Monitoring Report Version 01 dated 04/06/2010, on-site assessment and interviews with the stakeholders and resolution of outstanding issues and issuance of the verification report.

The project intends to reduce greenhouse gas (GHG) emissions by the construction of a new hydro project in Diebu County, Tibetan Autonomous Prefecture of Gannan in Gansu Province of China, to generate electricity for the Northwest China Power Grid (NWCPG). The proposed project will achieve CO₂ emission reductions by replacing a part of the electricity supplied by fossil fuel fired power plants connected to the NWCPG. As per the registered PDD, the total installed capacity of the project is 57 MW, consisting of three 19 MW turbines. The project's expected effective operating hours amount to 4,014 hours/year, with an average annual electricity output of 228,342 MWh supplied to the power grid.

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), clarifications (CLs) and forward action requests (FARs) were issued for relevant actions by the PP.

The verification team identified, through the verification process, 3 CARs and 7 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 02 dated 15/07/2010 based on the approved monitoring methodology and the monitoring plan of the registered PDD. Therefore LRQA certifies the emission reductions amounting to 19,167 tCO₂e and requests the CDM-EB to issue the CERs.

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Abbreviations

BE	Baseline emissions
BM	Build margin
CARs	Corrective action requests
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CER	Certified Emission Reduction
CLs	Clarifications
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
ERs	Emission reductions
FARs	Forward action requests
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
LE	Leakage emissions
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
NWCPG	Northwest China Power Grid
OM	Operating margin
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project design document
PE	Project emissions
PP	Project participant
tCO ₂ e	Ton of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change

2 Introduction

The project participant (PP) represented by GEPIC Darong Electric Power Company Ltd has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake the initial and first periodic verification of the proposed project activity "Bailongjiang Shuiboxia Hydropower Station" covering the monitoring period from 21/12/2009 to 29/05/2010. 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.

Michiaki Chiba	LRQA Limited	Team Leader, CDM Lead Verifier, Sector Expert,
Xianxin Yan	LRQA China	Team Member, CDM Verifier, Sector Expert
Andrew Ritchie	LRQA Limited	Technical Reviewer & Decision Maker
Stewart Niu	LRQA China	Sector Expert for Technical Review

Personnel being engaged in a 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 is 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 follows the requirements of the current version of the CDM validation and verification manual (CDM VVM) to ensure the quality and consistency of the verification work and the report.

2.2 Scope

The scope of verification is an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the CDM M&P. LRQA follows 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. A verification statement shall become final subject to the final review by the decision maker of the LRQA Ltd.

2.3 GHG Project Description

Project title	Bailongjiang Shuiboxia Hydropower Station
CDM reference	2866
Date of registration	21/12/2009
Applied methodology	ACM0002 / version 07. Consolidated baseline methodology for grid-connected electricity generation from renewable sources,
Crediting period	21/12/2009 - 20 /12/2019 (Fixed)
Project location	The geographical coordinates of the dam are 103°50'37" E and 33°59'16" N, and the geographical coordinates of the powerhouse are 103°53'13" E and 33°59'11" N. Diebu County, Tibetan Autonomous Prefecture of Gannan in Gansu province of China
Project participants	Host country participant: GEPIC Darong Electric Power Company Ltd - The People's Republic of China Annex-I country participant: N.V. Nuon Energy Trade & Wholesale - The Netherlands
Monitoring period	21/12/2009 -29/05/2010

3 Methodology

3.1 Desk review

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

- 1) review of data and information presented to verify the completeness
- 2) 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) 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 04/06/2010 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 the 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 the Appendix A. LRQA reviewed the final version of the monitoring report Version 02 dated 15/07/2010 to confirm that all changes agreed had been incorporated.

3.2 On-site assessment

On-site assessment is conducted as a part of verification activity and involves:

- 1) assessment of the implementation and operation of the CDM project activity as per the registered PDD
- 2) 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) review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) identification of QA/QC procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

Date	Place	Subject
16/03/2010 (Initial verification)	Bailongjiang Shuiboxia Hydropower Station Project site	Project implementation Monitoring systems including calibration Monitoring and reporting procedures QA/QC procedures
16/03/2010	Luoda substation of the grid	Monitoring systems including calibration Monitoring and reporting procedures QA/QC procedures
22/06/2010	Bailongjiang Shuiboxia Hydropower Station Project site	Resolution of initial verification findings Project implementation Data verification Monitoring systems including calibration Monitoring and reporting procedures QA/QC procedures Staff training Compliance with the monitoring methodology and registered MP
23/06/2010	GEPIC Darong Electric Power Company Ltd	Resolution of initial verification findings Project implementation Data verification Monitoring and reporting procedures

The list of persons interviewed is shown in the Appendix B.

3.3 Background investigation

The verification team made reference to additional data if comparable information is available from the other sources to cross check the MR on the correctness of stated figures. The sources and the data referenced are shown in Appendix A.

3.4 Resolution of clarification and corrective action requests

Findings identified in the process are indicated under the titles Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective Action Request (CAR):

- 1) Nonconformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient
- 2) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions and/or
- 3) Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants

Clarification (CL) Request:

- 1) information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

FARs are to be raised if the monitoring and reporting requires attention and/or adjustment for the next verification period. FARs do not relate to CDM requirements for issuance of ERs achieved during the subject monitoring period.

CARs and CLs are to be resolved or closed if the PP modifies the MR or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the ERs cannot be certified and recommended for issuance to the CDM Executive Board.

3.5 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

This section provides an overview of the verification activities undertaken by LRQA to arrive at the final verification conclusions and opinion. It includes a general discussion of details captured by the verification protocol (which is based on the Clean Development Mechanism Validation and Verification Manual Version 01.2) and conclusions related to CDM requirements. Further detail of each finding is shown in the Verification Findings Log.

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

- Registration and project implementation
- Monitoring and reporting systems
- Emission reductions

- Management systems
- Environmental and social impacts.

4.1 Registration and project implementation

The registration of the project activity by the CDM-EB after successful validation by a DOE is the prerequisite for the verification, certification and issuance of the CERs for the project activity. The project activity as described in the CDM-PDD Version 03 dated 09/12/2009 was validated by TÜV SÜD Industrie Service GmbH as per the validation report No.1196434 Revision No. 4 dated 16/12/2009 and formally registered by the CDM-EB on 21/12/2009.

The project intends to reduce GHG emissions by producing electricity through construction of a new hydro power station to generate electricity for the NWCPG. The project composes of a concrete gravity dam, release sluice, channels, powerhouse and switch station. The total installed capacity of the project is 57MW, consisting of three 19MW turbines. The type model of the three turbines is the same (HLA551-LJ-215). The type model of the three generators is the same (SF-J19-22/4250). The power is delivered to the Gansu Power Grid (which is a part of the NWCPG) through two 110 kV transmission lines to Luoda substation. The project's expected effective operating hours amount to 4,014 hours per year. The verification team confirmed this by checking the actual installation, the feasibility study report and the agreement between the PP and the grid company.

The project owner, GEPIC Darong Electric Power Company Ltd is a local company focusing on power industry investment located in Gansu Province in the Northwest of China.

The electricity generation facilities are produced domestically. The technical specification of the project facilities was checked by reviewing the equipment supply contracts, manufacturers' manuals, and physical observation at the project site.

An initial verification to confirm the project implementation status and readiness to monitor and report the ERs was conducted at the request of the PP, and the verification team visited the PP and the project site on 16/03/2010. The team requested actions to be taken by the PP and those corrective actions and clarifications were reviewed in the first periodic verification. Regardless of the scope of coverage of the initial verification, all the verification requirements were re-visited through the first periodic verification and the compliant status of the project activity at the completion of the MR was confirmed.

The status of the implementation of the project activity was confirmed by the verification team as it was described in the monitoring report Version 02 dated 15/07/2010 by the review of project documents, the on-site physical checking of the project's plant and facilities and the review of the operational records. The status was further confirmed as being compliant with the description in the PDD.

The reported ERs of the first monitoring period are 19,167 tCO₂e. The achieved ERs are lower than the estimated annual ERs of 194,045 tCO₂e in the registered PDD. The verification team analysed the actual power generation in a full one-year period inclusive of the subject monitoring period.

The project plant became operational with the first generator #3 starting operation on 07/02/2010, after the registered date of the project on 21/12/2009. The generator #2 and #1 started operation on 23/04/2010 and 28/04/2010 respectively. Therefore, the

operating time of each generating unit has been much shorter than the total monitoring period of 160 days. The total actual net electricity exported to the grid during the monitoring period was 22,554.840MWh, which corresponds to an emission reduction of 19,167tCO₂e. This is 77.47% lower than the designed value of 85,061tCO₂e ($194,045\text{tCO}_2\text{e}/365\text{days} \times 160\text{days} = 85,061\text{tCO}_2\text{e}$), and this lower rate can be explained by the fact that generation equipment was not commissioned and operational at the earlier part of the monitoring period. It is also noted that the early part of the project required time for equipment to be debugged and run in, and there was also recognition that this monitoring period is during the dry season in which the water availability is lower than other months. The annual electricity generation stated in the registered PDD was taken from the FSR, which considered the historical average hydraulic data of the area.

Considering the specific operational conditions during the subject monitoring period, the relatively low performance of the project activity is not considered to be as a result of any change from the activity as described in the registered PDD. The team confirmed that the actual operating days of each generating unit were: Unit 1: 22 days, Unit 2: 7 days and Unit 3: 78 days. The average PLF of the units during the monitoring period, excluding the days before commissioning and non-operated days, was 47.16%. This was 102.92% of the ex-ante estimated PLF of the PDD at 45.82%. Therefore, the plant performance itself was demonstrated to be of the expected level as defined in the registered PDD and no significant change was observed. The operational days since commissioning for each generating unit were: Unit 1: 68.75%, Unit 2: 18.92% and Unit 3: 69.64%. This relatively high proportion of non-operating days was due to the need for initial operational problems to be addressed and also to lower water availability. During periods of low water, it is preferable for a unit to be kept on stand-by rather than operated with reduced load rate, as this increases overall plant efficiency. For example, Unit 2 was not operated most of May 2010 so that load rate of Unit 1 and Unit 3 could be kept high. The situation is considered as reasonable.

The construction of the project was not finished when the verification visit took place. The verification team observed on site that the associated works such as construction and installation of the administration building, the road system and some auxiliary facilities were still on-going. The verification team checked the investment records of the project activity and found that the total investment was 432.120 million RBM up to 31/05/2010. The estimated total investment in the PDD was 447.66 million RMB. The final investment cost was not available at the time of verification because the construction was still not fully finished, but there have been no changes that affect the additionality of the project activity validated at the project's registration. The completed expenditure at the time of the verification visit already amounted to 96.53% of the estimated total investment cost in the registered PDD, with further construction still to be undertaken and the related payment is still pending. Therefore, the verification could confirm that no significant decrease in the total investment cost is expected, based on the available information at the time. According to the registered PDD, with a 10% decrease in the total investment cost, the project's IRR becomes 5.83%, which does not reach the 8% benchmark IRR.

It was also noted that the actual tariff of the project is 0.25 RMB/kWh with tax. Whilst this actual tariff is approximately 10% higher than the tariff used in the investment analysis of the PDD, the project's IRR remains below the benchmark according to the sensitivity analysis. Using a 10% higher electricity tariff, the project's IRR is 6.03%, which is still below the benchmark IRR of 8%.

During the verification, LRQA did not find any other significant changes to the project activity compared with the registered PDD. The input value of the parameters used in the demonstration of the project's additionality were confirmed by checking the financial audit report from a qualified third party (Crowe Horwath China Certified Public Accountants Co. Ltd., Gansu Branch), the payment evidence of the major equipment construction and service and the actual power sales invoices as available at the time of the verification. Therefore, the verification team confirmed, based on the available information at the time, that there was no significant change in the project activity from the registered PDD which may impact the additionality of the project activity as defined in the 'Guidelines on assessment of different types of changes from the project activity as described in the registered PDD'.

CL 01

The technical specification of water turbines and generators actually installed was not exactly the same as that indicated in the registered PDD. The PP was requested to clarify if the different technical specification changes the project activity from that described in the registered PDD, especially with regard to the effective output capacity or operational parameters (such as plant load factor). The PP was also requested to clarify the procedures for the monitoring of parameter Cap_{PJ} following the registered monitoring plan.

In closing the CL, the PP analysed the effective output capacity and changes in the operational parameters of the water turbines and generators and presented a clarification from the FSR provider of the project, including a cause and effect analysis indicating that the change will not affect the effective output capacity and operational parameters. The monitoring of Cap_{PJ} had been added in the updated monitoring report. Thus the CL was closed.

CL 02

During the initial verification, a CL was raised requiring the PP to demonstrate that the implementation of the project activity is as described in the registered PDD, especially demonstrating that the scale of investment did not significantly change from that which was considered in making the investment decision, as described in the registered PDD. The team verified the third party financial audit report (end date is 31/12/2009) and the investment made afterwards by checking the internal investment statistics (01/01/2010 to 31/05/2010), crosschecked with the actual payment records, and found that the scale of investment did not significantly change from that described in the registered PDD. Thus, this CL was closed.

4.2 Monitoring and reporting systems

The Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002 / Version 07 has been applied to establish the MP that has been validated and registered. During the first periodic verification, the verification team confirmed that no need had been identified to revise the MP as compliance with the applied monitoring methodology was maintained throughout the monitoring period.

According to the MP, $EG_{out,y}$, $EG_{in,y}$, EG_y , TEG_y , Cap_{PJ} and A_{PJ} are to be monitored. $EG_{out,y}$ and $EG_{in,y}$ are used for the purpose of monitoring of the net electricity delivered to the grid by the proposed project ($EG_y = EG_{out,y} - EG_{in,y}$). $EG_{out,y}$ and $EG_{in,y}$ are directly measured on a continuous basis and recorded monthly. Figure B.7.2-2 of the registered PDD shows the locations of the meters used for the monitoring of electricity

supplied to the grid. TEG_y , total electricity produced by the project activity, is determined as a sum of continuously and directly measured power generation by 3 generators and is recorded on monthly basis. Installed capacity of the hydro power plant after the implementation of the project activity (Cap_{PJ}) is monitored by the PP by checking the nameplate of the equipment on the site every year. The monitoring of the area of the reservoir (A_{PJ}) was undertaken by a qualified professional consultant company (Mapping Department of the Northwest Survey and Design Institute of China Hydro Power Consulting Group). Figure C-1 of the monitoring report elaborates on the status of all of the monitoring parameters of the project.

The electricity received by the grid company is continuously measured by the meter installed at Luoda Substation (Meter M1). A back up meter named M1' is installed at the same location as M1. The raw data is collected by the grid company, the monitored data is reported to the PP on monthly basis and the power generation data is checked and compared by the PP against the data monitored by the meter M2 installed in the outlet of the main transformer of the plant. A meter M2' is installed as the backup meter for M2. The sales invoices are also used for double-check purposes. The power meters M1, M1', M2 and M2' are bi-directional and have an accuracy of 0.2s class.

The verification team confirmed through the on-site assessment 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. During this monitoring period, there have been no emergency situations relating to meters M1, M1', M2 and M2' that have led to them exceeding the allowable tolerance or otherwise malfunctioning. The reading of M1 was used for the ER calculation. The team also confirmed the uninterrupted operation of the main meters for each month of the monitoring period by reviewing the EG_{out} and EG_{in} data.

The appropriateness of the measuring equipment was confirmed with reference to the requirements of the applicable local regulations and by comparison with the application to similar CDM project activities. The verification team physically checked all the measuring equipment used for the project activity and reviewed the calibration records of all the measuring equipment used during the monitoring period. The team confirmed them as meeting the requirement of the registered MP, with the exception of the calibration of meters M3, M4 and M5. This issue is described in CAR 01, which was subsequently addressed as per the description below.

Detailed information on electricity meters installation and calibration

Meter No.	Type	Accuracy	Serial Number	Calibration Frequency	Date of calibration
M1	SL761A071	0.2s	53051353	1 year	02/02/2010 20/03/2010 24/06/2010
M1'	SL761A071	0.2s	53051354	1 year	02/02/2010 20/03/2010 24/06/2010
M2	SL761A071	0.2s	53051351	3 year	02/02/2010
M2'	SL761A071	0.2s	53051352	3 year	02/02/2010
M3	DTSD341	0.5s	09030029960003	3 year	24/06/2009
M4	DSSD331	0.5s	09030029960004	3 year	24/06/2009
M5	DSSD331	0.5s	09030029960001	3 year	30/06/2009

The calibration records and the calibration certificates of the electricity meters were provided to LRQA for verification. The records show that the above monitoring equipment is calibrated by Electricity Power Calibration Center of Gansu Province Electricity Company. This Centre was certified by Technical Supervision Bureau of Gansu Province on 05/01/2008 and the certificate is valid until 04/01/2011. The PP has established the monitoring procedures to ensure the calibration of M1 and M1' takes place, as a minimum, on an annual basis to satisfy the requirement of the registered MP. The PPA does not include a clear indication of the required calibration interval, but it does refer to national guidelines DL/T448-2000 wherein a quarterly calibration is recommended, though it is not a mandatory requirement. The grid company is responsible for ensuring the regular calibration of M1 and M1' according to the PPA and this has been done during the monitoring period. This is why the calibration has been conducted for the meters M1 and M1' more than once a year. The verification team confirmed that regular calibration of M1 and M1' has been maintained to satisfy the requirements of the registered MP, PPA with the grid company and the host county regulations; hence, the situation is judged as acceptable.

The monitoring has been implemented by the PP in accordance with the registered MP. Electricity meters are continuously measuring 100% of the data of the electricity exported and imported by the project plant and the monthly record is kept in electronic and hard copy data. The data is archived on the project site and was available for verification. A double-check by receipt of sales and invoice of purchases was conducted by the PP and the result of this was presented for verification. No deviation to the approved monitoring methodology or the registered MP was proposed by the PP.

CAR 01

Records of calibration of the three meters used for monitoring of TEG_y (M3, M4 and M5) were not presented for verification. CAR 01 was issued.

The calibration was delayed due to problems with the calibration agency and conducted on 24/06/2010 for meters M3 and M4 and on 30/06/2010 for M5. The team checked the on-site Inspection Reports issued by the Electricity Power Calibration Center of Gansu Province Electricity Company dated 30/06/2010 presented by the PP, and confirmed that the three meters had been appropriately calibrated. The results also indicated that the accuracy of the meters were within the specified permissible error range of the meters.

The verification team considered this situation in relation to the 'Guidelines for assessing compliance with the calibration frequency requirements' and concluded that the delay in the calibration did not affect the calculation of the ER and that no adjustment due to the delayed calibration was applicable for the monitoring period. This conclusion is based on the fact that the three meters are used for the determination of reservoir project emissions, but those emissions are not applicable for the monitoring period because the power density was greater than 10W/m². The CAR was therefore closed.

CAR 02

During the initial verification, the team noted that the registered monitoring plan had not recognised the potential for electricity to be imported through a 10kV electricity line previously used for the import of electricity from the grid during the construction of the project plant. A CAR was raised in relation to this.

The PP confirmed in response to the CAR that the 10kV electricity line is not used for operation of the project plant and presented a declaration letter from the Grid

Company demonstrating that the 10 kV line used for the construction purpose of the project had been cut off. According to the applied methodology, emissions related to the power plant construction do not need to be considered as leakage. During the first periodic verification visit, the team verified on site that the 10kV power line was not connected to the project site and the CAR was closed.

CAR 03

In the initial verification, it was found that the monitoring of the parameter A_{PJ} had not been undertaken in compliance with the registered monitoring plan.

The PP commissioned the Mapping Department of the Northwest Survey and Design Institute of China Hydro Power Consulting Group to conduct the monitoring of A_{PJ} by using a topographical surveys approach. The Institute holds a grade A level certificate for hydro survey and design, issued by the Construction Ministry. The report indicated that the area of the reservoir measured on the surface of the water when the reservoir is full is 81,200 m². The A_{PJ} value indicated in the PDD is 474,300 m², for which the PP referred to the area flooded in the FSR. The area flooded is larger than the surface area of the reservoir and it was considered more conservative to use greater value for A_{PJ} ex-ante to determine smaller power density. The team reviewed the FSR of the project and the report of topographical survey by the third party institute and confirmed that the ex-post measured value of A_{PJ} is in compliance with the registered MP and credible.

The ex-post determined power density is 702 W/m², which is greater than the 10 W/m² stated in the methodology, whereupon project emissions (PE_y) are considered to be zero. Therefore, the CAR was closed.

CL 03

In the initial verification, a CL was raised on the cross-check of the data monitored for the purpose of the calculation of the emission reductions. Reporting of monitored emission reductions is made on monthly basis and then it is compiled for the specified monitoring period. But the PP was requested to clarify its monitoring procedures in relation to which dates of a month (from and to) the emission reductions are calculated, cross-checked against the data obtained from M1/M1', M2/M2' and receipt of sales, and subsequently included in the monitoring report. The procedures should ensure that a comparison of data is conducted for the same periods.

The monitoring period of each month was clarified in the dedicated record forms that facilitate cross-comparison of data and aim to prevent the occurrence of any inconsistencies. According to the rules of the grid company, the reading of the power meters in the substation is made on the second last day of each month and it is this date which is applied to the M1/M1' readings and the sales invoices. The PP now applies the same period for M2/M2' readings and conducts a cross-check by using data for the same periods. The CL was closed.

CL 04

In Table D.2 of the MR, the source of data used for EG_y is indicated as the Monitoring Report. But the value is actually calculated from $EG_{out,y}$ and $EG_{in,y}$. The table also incorrectly indicates that the TEG_y data is used for baseline emission calculations. This parameter is used for the calculation of project emissions, as stated in the applied methodology.

The PP amended the MR and the team confirmed that these revisions were correct. The CL was closed.

4.3 Emission reductions

The MR Version 01 dated 04/06/ 2010 was initially presented to the verification team. The crediting period for the project has been set as 21/12/2009 to 20/12/2019 (Fixed crediting period). The monitoring period for the first periodic verification is 21/12/2009 to 29/05/2010.

Project emissions

According to the applied methodology ACM0002 / Version 07 and the registered PDD, the project emissions of the project activity are considered as zero. The verification team confirmed during the on-site assessment that, other than that related to the generation of electricity, no other on-site energy use related with power generation was taking place. On-site electricity consumption is accounted for in the determination of the net electricity delivered to the grid by the project.

Project emissions from the reservoir are zero during the monitoring period as it was confirmed that the power density was greater than 10W/m² for the monitoring period.

Leakage emissions

Leakage emissions are not considered as per the applied methodology and the registered PDD. No change from the situation described in the registered PDD was found during the verification that relates to leakage emissions.

Baseline emissions

Baseline emissions are calculated by multiplying together the net electricity supplied to the grid and the baseline emission factor of the NWCPG of 0.8498 tCO₂e/MWh, which has been determined ex-ante and is fixed during the crediting period.

Based on the monitored data, the baseline emissions are calculated as follows.

Electricity exported to the grid: 22,597,740 kWh

Electricity imported from the grid: 42,900 kWh

Net electricity supplied to the grid: 22,597,740 - 42,900 = 22,554,840 kWh

22,554,840 kWh / 1000 x 0.8498 tCO₂e/MWh = 19,167 tCO₂e

Emission reductions

ERs are calculated as follows.

$$ER_y = BE_y - PE_y - LE_y$$

Leakage emissions (LE_y) are not considered for the project case and project emissions (PE_y) are considered as zero, as mentioned above.

Therefore:

ER_y = BE_y = 19,167 tCO₂e.

Electricity exported to the grid and imported from the grid through the power transmission line is measured by Meter M1, which is located at the substation of the regional grid. Data taken by Meter M2 is used to confirm the accuracy and consistency of the data produced by the M1 meter. Meter M2 is located at the outlet of the main transformer of the project site and shows higher values than Meter M1 due to the transmission line loss between the two locations. The settlement of electricity sales and purchases with the grid company is made based on the values taken by Meter M1 and the use of these values for the calculation of the ERs is considered to be appropriate and more conservative.

CL06

The PP was requested to present evidence for the explanation made in the MR relating to the difference between the actual ERs and those estimated in the PDD.

As detailed in the section 4.1 above, the actual ER achieved during the 1st monitoring period was lower than the estimation in the PDD because of the delayed start to generation activities, initial maintenance needs and low water availability during the period. The Operation Duty Log has been provided to DOE, which indicates the dates on which each generator started operation: Generator #3 on 07/02/2010, Generator #2 on 23/04/2010, and Generator #1 on 28/04/2010. Therefore the operating time of each generating unit was much shorter than the total monitoring period of 160 days. The operational load of each generator is gradually increased through test runs and generation can be interrupted to address initial operational problems.

The annual electricity generation in the registered PDD was taken from the FSR that considered historical average hydraulic data. The FSR showed the river runoff during November to April is lower than the average water runoff for the year, which further contributes to the low ERs achieved during this monitoring period.

The verification team also referenced the seasonal electricity generation trends of similar CDM projects in the same province and noted that it is a general trend in the province, based on the reported data in 2009, that a lower quantity of electricity is produced during February to May in comparison with the annual monthly average. The CL was closed.

CL 07

During the verification, the team checked the monitoring record of meter M2 and found that, for the month 30/01/2010-26/02/2010, the value for EG_{out} monitored by M2 was 3538.92 MWh. This is different from the value indicated in Table E-1 of the MR (Version 01) of 3558.92MWh. Furthermore, for the month 30/01/2010-26/02/2010, the value of EG_{out} of 3538.92 MWh (without the line loss) is lower than the value of M1 of 3551.46 MWh (with line loss). The EG_{out} data of M2 during the period 27/02/2010-29/03/2010 also requires clarification.

The PP explained that the value of EG_{out} monitored by M2 (3558.92MWh), as indicated in Table E-1 of the MR (Version 01), was a mistake. The MR was revised in relation to this point.

The PP also confirmed that the meters M2 and M2' were wrongly connected during a test run, resulting in a power export figure of 3,538.92 MWh and a power import figure of 14.52 MWh in the month of 30/01/2010-26/02/2010. These figures did not match with the monitored data of M1 and M1', (3,551.46 MWh for export and 0 MWh for import). The PP indicated that the power import figure of 14.52 MWh for M2 and M2' was actually power export and by adding this value to the reported power export figure (3,538.92 MWh) for M2 and M2', the export amount of the month for M2 and M2' becomes 3,553.44 MWh, which is a reasonable value in comparison with the records of M1 and M1' and taking into account the transmission line loss. The verification team reviewed the plant operation log, compared the operation data, and confirmed the background of the inconsistency between the reported data of M1/M1' and M2/M2'.

According to the registered MP, $EG_{out,y}$ is determined by direct measurement of meter M1, which is double-checked by receipt of sales. Meter M2 is intended to serve as an additional quality check in excess of the requirements of the monitoring methodology. As no major discrepancies were observed between the main monitoring by meter M1 and the receipt of sales, the determination of ERs by the measured values of M1 is considered as appropriate. The EG_{out} data of M2 during the period 27/02/2010-

29/03/2010 was revised using original data from the Operation Log (daily record). The CL was closed.

The verification team checked the calculation of ERs and confirmed that it was reproducible based on the measured raw data. The emission factor determined ex-ante was correctly applied in the calculation. No additional assumption was used that relates to the accuracy of the ER calculation. The verification team therefore confirmed the correctness of the ERs monitored and reported in the MR

4.4 Management systems

The management structure has been established in accordance with the registered MP. The verification team, through the on-site assessment, confirmed that the management personnel have been assigned as per the registered PDD. Records of staff training were presented for review and appropriate competence was confirmed by the verification team through interviews during the on-site assessment.

Procedures for calibration of the monitoring equipment have been established in accordance with the registered MP, fulfilling the manufacturer's recommendations and the host country requirements.

Calibration of the monitoring equipment has been conducted by qualified third party institutes. The verification team, by means of desk review and on-site assessment, confirmed that the calibration records for the main monitoring equipment for power supply and consumption, including M1, M1', M2 and M2', were available for verification. The calibration of M3, M4 and M5 was delayed and the detailed evaluation of this is noted in relation to CAR 01 and its resolution.

The monitored data and supporting information are to be archived until the end of crediting period plus 2 years according to the registered MP. Records of double-checks between the monitored data and commercial records conducted by the PP in accordance with the requirement of the MP were available for verification.

Emergency procedures have been defined as a part of the monitoring and reporting procedures. No emergency situation was reported during the monitoring period.

CL 05

According to the registered MP, the Vice General Manager will hold the overall responsibility for the monitoring process and approval of the monitoring report. But no evidence was shown demonstrating that the MR had been approved by the authorised person in accordance with the requirement of the registered MP. CL 05 was issued.

The PP clarified the procedures and confirmed that the signature of the Vice General Manager indicating the approval of the MR is to be placed onto the final version of the MR.

4.5 Environmental and social impacts

Through the verification process, the verification team physically observed environmental management being applied at the project site.

The environmental impact assessment (EIA) of the project activity has been undertaken and approved by the local government. In accordance with the requirement of local environmental legislation, an environmental protection acceptance inspection

will be conducted after the construction of the project is finished and the project plant becomes fully operational. As the project construction has not been finished at the time of this verification, this acceptance inspection has not yet been conducted. The verification did not identify any negative environmental and social impacts resulting from the project activity during the monitoring period.

5 Making the monitoring report publicly available

In accordance with the 'Procedures for making the MR available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM', the MR Version 01 dated 04/06/2010 was made publicly available on the CDM website on 04/06/2010 at:

<http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249389440.55/iProcess/LRQA%20Ltd1275659156.83/view>

Through the verification process, minor changes were made to the MR. The reasons for these changes are outlined in this report. The verification team confirmed the changes from the original MR were appropriate.

6 Verification opinion

LRQA has undertaken the initial and the first periodic verification of the proposed project activity "Bailongjiang Shuiboxia Hydropower Station" covering the monitoring period from 21/12/2009 to 29/05/2010, 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.

The project intends to reduce greenhouse gas (GHG) emissions through the implementation of a grid-connected 57 MW hydro project in Diebu County, Tibetan Autonomous Prefecture of Gannan in Gansu Province of China. By supplying the renewable energy based electricity to the connected regional electricity grid, Northwest China Power Grid, the project activity reduces GHG emissions that are produced by fossil fuel fired power plants connected to the grid in the absence of the CDM project activity.

The PP is responsible for monitoring and reporting of the ERs achieved by the project activity during the monitoring period. LRQA is responsible for expressing an independent verification opinion on the reported ERs in the MR.

In order to arrive at the final verification conclusions and opinion, LRQA carried out a desk review, based on the MR Version 01 dated 04 June 2010 initially submitted for verification, together with a review of a subsequent revision, on-site assessment, follow-up interviews, resolution of outstanding issues, independent background research and issuance of the verification report. The verification process included an initial verification in accordance with a request from the PP prior to completion of the MR that specifically focused on confirmation of project implementation, monitoring systems and readiness to generate verifiable ERs. An initial verification findings log was established at the end of the initial verification process and those findings were resolved through the first periodic verification. The initial verification is an integral part of this verification but all the verification requirements were re-visited through the first periodic verification to confirm the compliant status of the project activity at the completion of the MR.

Through the verification process, the verification team identified 3 CARs and 7 CLs. The PP took actions on the raised issues and submitted to LRQA the revised MR Version 02 dated 15/07/2010 and other supporting evidence. All CARs and CLs have been appropriately closed prior to 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 as having been registered complies with the approved monitoring methodology, the monitoring complies with the registered 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 activity "Bailongjiang Shuiboxia Hydropower Station" during the monitoring period of 21/12/2009 to 29/05/2010 amounting to 19,167 tCO₂e to the CDM Executive Board.

Decision Maker



Andrew Ritchie

Climate Change Services Manager

7 Appendices

7.1 Appendix A: List of documents reviewed

Category A documents (documents from the PP)

- 1) Monitoring Report for Bailongjiang Shuiboxia Hydropower Station. Monitoring period 21/12/2009 -29/05/2010. Version 01 dated 04/06/2010
- 2) Monitoring Report for Bailongjiang Shuiboxia Hydropower Station. Monitoring period 21/12/2009 -29/05/2010. Version 02 dated 15/07/2010
- 3) Calculation spreadsheet for Bailongjiang Shuiboxia Hydropower Station. Monitoring period 21/12/2009 -29/05/2010
- 4) Feasibility Study Report of Bailongjiang Shuiboxia Hydropower Station and its approval
- 5) EIA report of Bailongjiang Shuiboxia Hydropower Station and its approval
- 6) Daily Operation Log (February, March, April, May of 2010)
- 7) Calibration Certificate of the Electricity Meter (for meter M1) 53051353 dated 02/02/2010, 20/03/2010 and 24/06/2010
- 8) Calibration Certificate of the Electricity Meter (for meter M1') 53051354 dated 02/02/2010, 20/03/2010 and 24/06/2010
- 9) Calibration Certificate of the Electricity Meter (for meter M2) 53051351 dated 02/02/2010
- 10) Calibration Certificate of the Electricity Meter (for meter M2') 53051352 dated 02/02/2010
- 11) Onsite Inspection Report of the Electricity Meter (for meter M3) 09030029960003 dated 24/06/2010
- 12) Onsite Inspection Report of the Electricity Meter (for meter M4) 09030029960004 dated 24/06/2010
- 13) Onsite Inspection Report of the Electricity Meter (for meter M5) 09030029960001 dated 30/06/2010
- 14) Accreditation Certificate of Electricity Power Calibration Centre of Gansu Electricity Supply Company
- 15) Power sales invoices covering the monitoring period
- 16) Power Quantity Settlement 200912 issued by the Grid Company
- 17) Power Quantity Settlement 201001 issued by the Grid Company
- 18) Power Quantity Settlement 201002 issued by the Grid Company
- 19) Power Quantity Settlement 201003 issued by the Grid Company
- 20) Power Quantity Settlement 201004 issued by the Grid Company
- 21) Power Quantity Settlement 201005 issued by the Grid Company
- 22) Power Quantity Settlement 201006 issued by the Grid Company
- 23) Clarification of the turbine and generator change of Bailongjiang Shuiboxia Hydropower Station issued by the FSR provider
- 24) Finance Auditing Report of Bailongjiang Shuiboxia Hydropower Station, 2009 (up to 31/12/2009) conducted by Crowe Horwath China Certified Public Accountants Co., Ltd Gansu Branch
- 25) Investment records and payment proof after 01/01/2010 up to 31/05/2010
- 26) CDM Monitoring Manual Version 2
- 27) Survey Report on Surface Area of the Reservoir of Bailongjiang Shuiboxia Hydropower Station

- 28) Installation Capacity Monitoring Report of Bailongjiang Shuiboxia Hydropower Station 2010
- 29) Daily monitoring record on month end and start (February, March, April, May of 2010)
- 30) Training records on CDM of Bailongjiang Shuiboxia Hydropower Station

Category B documents (other documents referenced)

- 1) CDM-PDD version 03 dated 09/12/2009
- 2) Validation report No. 1196434 Revision No. 4 dated 16/12/2009 issued by TÜV SÜD Industrie Service GmbH
- 3) Approved consolidated baseline methodology ACM0002 / Version 07 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
- 4) Baseline emission factor of the grid in China published by Chinese DNA (2008 version)
- 5) Clean Development Mechanism Validation and Verification Manual Version 01.2
- 6) Guidelines on assessment of different types of changes from the project activity as described in the registered PDD
- 7) Procedures for making the monitoring report available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM (Version 01)
- 8) Procedures relating to verification report and certification report/request for issuance of CERs (version 01.1)
- 9) Procedures for modalities of communication between project participants and the executive board Version 01
- 10) Guidelines on completeness check of requests for issuance
- 11) DL/T 448-2000 Technical administrative code of electric energy metering
- 12) Reference to similar project activities
- 13) Procedures for Requests of Issuance of CERs version 01
- 14) Guidelines for Completing the Monitoring Report Form (CDM-MR) (Version 01)
- 15) Guidelines for assessing compliance with the calibration frequency requirements (Version 01)

7.2 Appendix B: List of persons interviewed

GEPIC Darong Electric Power Company

- Mr. Wu Faquan, Deputy Manager of Bailongjiang Branch
- Mr. Cui Chuntao, Bailongjiang Branch
- Mr. Hu Bo, CDM monitoring officer
- Mr. Chen Fei, Technical staff of Shuiboxia Power Station
- Mr. Hu Zhenyu, Technical staff of Shuiboxia Power Station
- Mr. He Xiaoyang, Operator

DHV Company (the consultant)

- Ms. Jennifer Wang, Project Manager

Luoda Substation of the grid company

- Mr. Li Linzhi, Station leader

7.3 Appendix C: Certificate of Appointment

Verification of “Bailongjiang Shuiboxia Hydropower Station”

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

Name of Person	Assigned Roles
Michiaki Chiba	Team Leader, CDM Lead Verifier, Sector Expert
Xianxin Yan	Team Member, CDM Verifier, Sector Expert
Andrew Ritchie	Technical Reviewer & Decision Maker
Stewart Niu	Sector Expert for Technical Review

Signed by

Decision Maker



Andrew Ritchie
Climate Change Services Manager

7.4 Appendix D: Verification findings log

1. Grade / Reference:	CAR01	2. Date:	25 June 2010	3. Status:	Closed
4. Requirement	Calibration				
5. Finding: Records of calibration for the power meters of M3, M4 and M5 on 05/02/2010 were not presented for verification.					
6. Conclusion: The calibration was delayed and conducted on 24/06/2010 for meters M3 and M4 and on 30/06/2010 for M5. The team checked the on-site Inspection Reports issued by the Electricity Power Calibration Center of Gansu Province Electricity Company dated 30/06/2010 presented by the PP and confirmed that the required calibration items are described with positive result in the report. The verification team considered the situation following the Guidelines for assessing compliance with the calibration frequency requirements. The result of delayed calibration showed the accuracy of the meters are within the specified permissible error range of the meters. The three meters are for determination of reservoir project emissions but the emissions are not applicable for the monitoring period because the power density was greater than 10W/m ² . The delay of the calibration of the three meters used for monitoring of TEG _y did not affect the calculation of the ER and no adjustment due to the delayed calibration is applicable to the monitoring period following the Guidelines for assessing compliance with the calibration frequency requirements. The CAR was closed.					

1. Grade / Reference:	CAR 02	2. Date:	15 Mar 10	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding: During the initial verification, the team raised the CAR to the situation that a 10kV electricity line was used for electricity import from the grid for construction of the project plant but possible electricity import if it is connected to the project site is not addressed in the registered monitoring plan..					
6. Conclusion: The PP confirmed in response to the CAR that the 10kV electricity line is not used for operation of the project plant and presented a declaration letter from the Grid Company demonstrated that the 10 kV line used for the construction purpose of the project had been cut off. During the first periodic verification visit, the team verified on site that the 10kV power line is not connected to the project site and the CAR was closed					

1. Grade / Reference:	CAR 03	2. Date:	15 Mar 10	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding:	In the initial verification, it was found that the monitoring of the parameter A_{PJ} had not been implemented in compliance with the registered monitoring plan				
6. Conclusion:	The PP commissioned the Mapping Department of the Northwest Survey and Design Institute of China Hydro Power Consulting Group to conduct the monitoring of A_{PJ} by using a topographical surveys approach. The Institute holds grade A level of hydro survey and design certificate issued by the Construction Ministry. The team reviewed the FSR of the project, the report of topographical survey by the third party institute and confirmed that the value of A_{PJ} is in compliance with the registered MP and considered as credible. The CAR was closed.				

1. Grade / Reference:	CL 01	2. Date:	15 Mar 10	3. Status:	Closed
4. Requirement	CDM M&P para 56, 62 (g)				
5. Finding:	<p>The technical specification of water turbines and generators actually implemented is not exactly the same as that indicated in the registered PDD. The PP is requested to clarify if the difference of technical specification changes the project activity from that is described in the registered PDD, especially on the effective output capacity or operational parameters (such as plant load factor). The PP is also requested to clarify the procedures for monitoring of parameter Cap_{PJ} following the registered monitoring plan.</p> <p>The type model of the three turbines is the same as HLA551-LJ-215. The type model of the three generators is the same as SF-J19-22/4250.</p>				
6. Conclusion:	In closing the CL, the PP analysed the effective output capacity and changes in the operational parameters of the water turbines and generators and presented a clarification from the FSR provider of the project, including a cause and effect analysis indicating that the change will not affect the effective output capacity and operational parameters. The monitoring of Cap_{PJ} had been added in the updated monitoring report. Thus the CL was closed.				

1. Grade / Reference:	CL 02	2. Date:	15 Mar 10	3. Status:	Closed
4. Requirement	CDM M&P para 62 (g)				
5. Finding:	During the initial verification, a CL was raised requiring the PP to demonstrate the implementation of the project activity as described in the registered PDD, especially the scale of investment did not significantly change from that was considered in the investment decision making as described in the registered PDD.				
6. Conclusion:	The team verified the third party financial audit report (end date is 31/12/2009) and the further investment by checking the internal investment statistics (01/01/2010 to 31/05/2010), crosschecked with the actual payment records and found that the scale of investment did not significantly change from that described in the registered PDD. Thus this CL was closed.				

1. Grade / Reference:	CL 03	2. Date:	15 Mar 10	3. Status:	Closed
4. Requirement	CDM M&P para 53				
5. Finding: In the initial verification, a CL was raised on the crosscheck of the data monitored for the purpose of the calculation of the emission reduction.. Reporting of monitored emission reductions is made on monthly basis and then it is compiled for the specified monitoring period. But the PP is requested to clarify its monitoring procedures on from which date of a month to which date of a month the emission reductions of the month are calculated, cross-checked among the data obtained from M1/M1', M2/M2' and receipt of sales, and applied for a monitoring report. The procedures should ensure a comparison of data to be conducted to the same periods.					
6. Conclusion: Monitoring period of each month is clarified in the dedicated record forms that facilitate cross-comparison of data and prevent occurrence of an inconsistency. According to the rules of the grid company, the reading on the power meters in the substation is made on the second last day of each month, that is applied to M1/M1' readings and sales invoices. The PP applies the same period for M2/M2' readings and conducts crosscheck by using data of the same period correspondingly. The CL was closed.					

1. Grade / Reference:	CL 04	2. Date:	25 June 2010	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding: In the Table D.2 of the MR, the source of data used for EG _y is indicated as Monitoring report. But the value is calculated by EG _{out,y} and EG _{in,y} . It indicates that the data of TEG _y is used for baseline emission calculations but the parameter is for project emissions calculation according to the applied methodology.					
6. Conclusion: The PP amended the parts of the MR and the team checked that the relevant parts have been revised accordingly and correctly described in the revised MR. The CL was closed.					

1. Grade / Reference:	CL 05	2. Date:	25 June 2010	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding: According to the registered MP, the Vice General Manager will hold the overall responsibility for the monitoring process and approval of the monitoring report. But no evidence was shown on that the MR had been approved by the authorized person in accordance with the requirement of the registered MP. CL 05 was issued.					
6. Conclusion: The PP clarified the procedures and confirmed that the signature of the Vice General Manager indicating the approval of the MR is to be placed onto the final version of the MR.					

1. Grade / Reference:	CL06	2. Date:	25 June 2010	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding: The PP is requested to present evidence for the explanation made in the MR on the difference of the actual ER from the estimated ER in the PDD.					
6. Conclusion: The actual ER achieved during the 1 st monitoring period was lower than the estimation in the PDD because of the delay in start of generation, initial maintenance needs and low water availability during the period. The Operation Duty Log has been provided to DOE, which indicated the starting date of generators: Generator #3 on 07/02/2010, Generator #2 on 23/04/2010, and Generator #1 on 28/04/2010. Therefore the operating time of each generating unit was much shorter than the total monitoring period of 160 days. The operational load is gradually increased through test run and the generation is interrupted to debug the initial operational problem. The annual electricity generation in the registered PDD was taken from the FSR that considered historical average hydraulic data. FSR showed the river runoff during November to April is lower than the average water runoff of a year, which explained the low ERs achieved during this monitoring period. The verification team also referenced the similar CDM projects in the same province on trend of seasonal electricity generation amount and noted that it is a general trend in the province based on the reported data in 2009 that a lower electricity is produced during February to May in comparison with the annual monthly average. The CL was closed.					

1. Grade / Reference:	CL 07	2. Date:	25 June 2010	3. Status:	Closed
4. Requirement	CDM M&P para 56				
5. Finding: During the verification, the team checked the monitoring record of M2 and found for the month 30/01/2010-26/02/2010, the EG _{out} monitored by M2 are 3538.92 MWh which is different with the value indicated in Table E-1 of the MR (Version 01) as 3558.92MWh . Further, for the month 30/01/2010-26/02/2010, the value of EG _{out} as 3538.92 MWh (without the line loss) is lower than the value of M1 as 3551.46 MWh (with line loss). The EG _{out} data of M2 during the period 27/02/2010-29/03/2010 also requires clarification.					
6. Conclusion: The PP explained that the EG _{out} monitored by M2 indicated in Table E-1 of the MR (Version 01) as 3558.92MWh is a mistake. The MR was revised to this point. Further, the verification team sought clarification from the PP and confirmed that the meters M2 and M2' were wrongly connected during the test run time that resulted in power export of 3,538.92 MWh and power import of 14.52 MWh in the month of 30/01/2010-26/02/2010, which did not match with the monitored data of M1 and M1' 3,551.46 MWh for export and 0 MWh for import. 14.52 MWh for M2 and M2' was actually power export and by adding this value to the reported power export, the export amount of the month becomes 3,553.44 MWh, which is a reasonable value in comparison with the records of M1 and M1' and the transmission line loss. The verification team reviewed the plant operation log, compared the operation data and confirmed the background of the inconsistency between the reported data of M1/M1' and M2/M2'. According to the registered MP, EG _{out,y} is determined by direct measurement of the meter M1 that is double checked by receipt of sales. The meter M2 is to serve an additional quality check in excess of the requirements of the monitoring methodology and with no major disagreement observed from the main monitoring by the meter M1 and the receipt of sales, determination of ERs					

by measured value of M1 is considered as appropriate. The EG_{out} data of M2 during the period 27/02/2010-29/03/2010 was revised using original data from the Operation Log (daily record). The CL was closed.