

MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

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* as contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT

Version:01

Date:01/11/2011

Liujiaoshan 10 MW Small Hydropower Project in Jiangxi Province

CDM Registration Reference Number:1477

Monitoring period number: 2

Monitoring period date: 11/07/2009-10/09/2011

SECTION A. General description of the project activity

A.1. Brief description of the project activity: >>

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Liujiaoshan 10 MW Small Hydropower Project in Jiangxi Province (hereafter referred to as the Project) developed by Zixi Sanjiang Hydropower Co., Ltd. is located on the Baita river in Zixi County, Fuzhou City, Jiangxi Province. The purpose of the Project is to utilize the water resources of the Baita river to generate electricity to deliver to Central China Power Grid (CCPG) through the Jiangxi Power Grid (JXPG) without CO₂ emissions.

The Project is a 10 MW hydropower project with a reservoir of 19.9 million m³ storage capacity. The reservoir surface area at full reservoir level is 1.07 square kilometre, and the power density (defined as installed capacity divided by the surface area) is 9.3 W/m². It is estimated that the electricity supplied to the grid will be 25.09 GWh annually. The Project activity will achieve greenhouse gas (GHG) emission reductions by avoiding CO₂ emission from the business-as-usual scenario, electricity generated by those fossil fuel-fired power plants connected into CCPG. The estimated emission reductions are 22207 tCO₂e per year.

The project started to construct on 20/10/ 2004, commissioned on 28/08/2006.

The first monitoring period of the project is from 10/04/2008 to 10/07/2009, during the 2nd monitoring period (11/07/2009-10/09/2011), the project has achieved 35,630 tones of CO₂e emission reduction.

A.2. Project Participants

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Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
P.R.China (host)	Zixi Sanjiang Hydropower Co., Ltd. (project owner)	No
Sweden	EcoSecurities Group PLC (buyer)	No

A.3. Location of the project activity:

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The Project is sited within Liujiaoshan Village of Luyang Town, Zixi County, Fuzhou City, Jiangxi Province, P.R.China. The Project's dam site is located in the Baita river canyon 1.2 km downstream from Liujiaoshan Village and about 6 km from Zixi County. The geographical coordinates of the Project site are 27°49' N-117°07' E in degree.

A.4. Technical description of the project

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The Project is a diversion hydropower station. It is designed to deliver discharge flow of 22.48 m³/s with 44.62 m water head. The total installed capacity of the Project is 10 MW with 0.98 MW of guarantee output. It is estimated that the feed-in electricity to CCPG from the Project is approximately 25.09 GWh per year through a 35KV transmission line. The Project installs two sets of 5 MW hydro turbines and associated generators.

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

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The methodology applied for the Project is the approved methodology for small-scale CDM project-AMS-I.D. "Grid connected renewable electricity generation" (version 10).

A.6. Registration date of the project activity:

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10/04/2008

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

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The renewable crediting period is adopted for the Project. The first 7-year crediting period is 10/04/2008-09/04/2015.

A.8. Name of responsible person(s)/entity(ies):

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Entity: Cleanergy Investment Service (Beijing) Co., Ltd.

Address: Building 0-A, Anli Road, Chaoyang District, Beijing, P.R.China. 100107.

Tel: +86-10-83914567

Fax: +86-10-83914555

SECTION B. Implementation of the project activity
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B.1. Implementation status of the project activity

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The project commissioned on 28/08/2006. All the operation status is consistent with the description in the registered PDD.

There were no events or situations that occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Revision of the monitoring plan

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The monitoring plan needs to be revised.

B.3. Request for deviation applied to this monitoring period

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N/A

B.4. Notification or request of approval of changes
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N/A

SECTION C. Description of the monitoring system

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1、Implementation of the monitoring plan

The Project owner, Zixi Sanjiang Hydropower Co., Ltd will take the responsibility of the monitoring plan implementation.

2. Monitoring procedures

The electricity delivered to CCPG by the Project will be continuously monitored through the gateway meter installed at the substation. On-duty staff will watch the operation status of metering equipments everyday on site. Furthermore, designated staff will collect the measured electricity data and complete the corresponding records on a monthly basis. Before being archived, these records will be checked by other staffs to ensure the correctness. The data from these records will be digested and analyzed and the results will be reported to company administrator or supervisor.

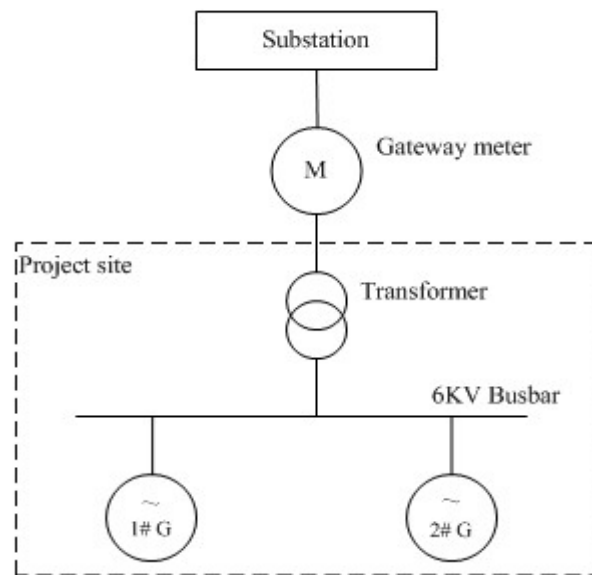


Figure 1. The diagram of Liujiashan 10MW Hydropower Project

3. Quality assurance and quality control

The quality assurance and quality control procedures involves of data monitoring, recording, maintaining and archiving, and monitoring equipment calibration.

The electricity delivered to CCPG by the Project will be monitored through the gateway meter at the substation. The data should be cross-checked against relevant electricity sales receipts and/or records from the grid for quality control. Since the data required to be monitored is consistent with the data required during project operation by the Project owner and the grid company, the Power Purchase Agreement between these two parties can be used as reference to data collection and documentation.

Calibration of Meters & Metering is implemented according to national standards and rules annually at least.

4. Emergency procedures

Problem occurred in monitoring and measurement process will be recorded and reported to company administrator or supervisor. Consequently, the corrective resolution will be adopted to deal with that problem and to avoid it occur again in future.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data / Parameter:	EF _y
Data unit:	tCO ₂ /MWh
Description:	Emission factor for CCPG
Source of data used:	Registered PDD
Value(s) :	0.9751
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Additional comment:	The data is calculated ex-ante and is fixed during the first crediting period

Data / Parameter:	EF _{Res}
Data unit:	kgCO _{2e} /MWh
Description:	Default emission factor for emissions from reservoirs
Source of data used:	Decision by EB23
Value(s) :	90
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Additional comment:	

D.2. Data and parameters monitored

Data / Parameter:	EG _y
Data unit:	MWh
Description:	Electricity supplied to the grid by the Project
Measured /Calculated /Default:	Measured
Source of data:	Measured by the gateway meter installed at the substation
Value(s) of monitored parameter:	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The Gateway meter is a bi-directional meter with accuracy level of 0.5S.
Measuring/ Reading/ Recording frequency:	Continuously measuring and monthly recording
Calculation method (if applicable):	
QA/QC procedures applied:	Cross check with the receipts of sales and/or records from the grid

Data / Parameter:	A _{pJ}
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Data unit:	km ²
Description:	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.
Measured /Calculated /Default:	Measured
Source of data:	Project site
Value(s) of monitored parameter:	1.07
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The area will be monitored based on topographical data and the height of the dam
Measuring/ Reading/ Recording frequency:	Monitored once at the start of the project. Monitored data will be kept during the crediting period.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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According to the applied methodology, the baseline emission in year y is calculated as

$$BE_y = EG_y \times EF_y$$

Period	EG _y (MWh)	EF _y (tCO ₂ e)	Baseline emission (tCO ₂ e)
11/07/2009-10/08/2009	2,041,200	0.9751	1,990
11/08/2009-10/09/2009	1,343,790	0.9751	1,310
11/09/2009-10/10/2009	489,720	0.9751	478
11/10/2009-10/11/2009	436,380	0.9751	426
11/11/2009-10/12/2009	824,040	0.9751	804
11/12/2009-10/01/2010	445,620	0.9751	435
11/01/2010-25/02/2010	2,452,380	0.9751	2,391
26/02/2010-25/03/2010	2,372,370	0.9751	2,313
26/03/2010-25/04/2010	3,546,270	0.9751	3,458
26/04/2010-25/05/2010	4,681,320	0.9751	4,565
26/05/2010-25/06/2010	4,074,840	0.9751	3,973
26/06/2010-10/08/2010	4,927,230	0.9751	4,805
11/08/2010-10/10/2010	1,549,590	0.9751	1,511
11/10/2010-10/12/2010	679,560	0.9751	663
11/12/2010-10/02/2011	1,638,630	0.9751	1,598
11/02/2011-10/03/2011	821,940	0.9751	801
11/03/2011-10/04/2011	899,640	0.9751	877
11/04/2011-10/05/2011	1,097,670	0.9751	1,070
11/05/2011-24/06/2011	3,759,210	0.9751	3,666
25/06/2011-10/08/2011	1,716,960	0.9751	1,674
11/08/2011-10/09/2011	460,530	0.9751	449
Total	40,258,890		39,256

E.2. Project emissions calculation

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The surface area of the reservoir at full water level was measured by Water resource Bureau of Zixi County after the implementation of the project. The actual measuring result of the surface area at full water level was 1.07 km². The power density of the project is 9.3W/m², which is greater than 4W/m² and less than 10 W/m².

According to the applied methodology, the project emission in year y is calculated as

$$PE_y = \frac{EF_{Res} \times EG_y}{1000}$$

Period	EG _y (MWh)	EF _{Res} (KgCO ₂ e/MWh)	Project emission (tCO ₂ e)
11/07/2009-10/09/2011	40,258,890	90	3,626

E.3. Leakage calculation

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According to the applied methodology, the leakage of the project is not considered, as L_y=0 tCO₂e.

E.4. Emission reductions calculation / table

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According to the applied methodology, the emission reduction in year y (ER_y) should be calculated as:

$$ER_y = BE_y - PE_y - L_y$$

Period	Baseline emission	Project emission	Leakage	Emission reduction
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	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)
11/07/2009-10/09/2011	39,256	3,626	0	35,630

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

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Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO ₂ e)	48,186	35,630

According to the registered PDD, the ex-ante estimated average annual emission reductions are 22,207 tCO₂e. This monitoring period covers 792 days, therefore the ex-ante estimated emission reductions should be 48,186 tCO₂e as per the registered PDD ($22,207 \times 792 / 365 = 48,186$).

E.6. Remarks on difference from estimated value in the PDD

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Due to the comparison in E.5., the emission reductions of this monitoring period (11/07/2009-10/09/2011) are lower than the estimation in the registered PDD.

History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory Document Type: Guideline, Form Business Function: Issuance		