MONITORING REPORT

CONTENTS

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Version 03 07/03/2011

Xiaoxi Hydropower Project
Monitoring period (28/01/2008 - 18/12/2008)

SECTION A. General description of the project activity

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

The purpose of the report is to calculate the emission reductions generated by Xiaoxi Hydropower Project (thereafter referred to the Project) during the monitoring period (28/01/2008 – 18/12/2008).

The Project is a newly built hydropower plant. The purpose of the Project is to generate electricity using clean hydropower resources. The Project will contribute to the reduction of GHG emission by displacing part of the electricity from the Central China Grid, which is dominated by fossil fuel fired power plants.

The total installed capacity of the Project is 135 MW. The project construction was commenced on October 20, 2004. The 1# Unit (40MW) was started commissioning[1] on 28/01/2008 and commercially operated from 31/01/2008; the 2# Unit (40MW) was commercially operated from 01/05/2008; the 3# Unit was commercially operated from 07/08/2008; the 0# Unit (15MW) was commercially operated from 09/10/2008. The project has been registered as a CDM project on 19th Dec. 2008 (UNFCCC registration reference number: 1749).

The total installed capacity of the Project is 135 MW. With 10.1 km^2 of reservoir area, the power density of the Project is 13.37 W/m^2. The electricity generated by the Project is supplied to the Central China Grid, displacing part of electricity generated by the Central China Grid which is dominated by fossil fuel-fired power plants.

Relevant dates for the project activity is as below:

Construction start date: October 20, 2004

Starting date of power generation: 28/01/2008

Continued operation periods: 30 years

During the monitoring period (28/01/2008 – 18/12/2008), the monitoring activities were conducted strictly in accordance with the monitoring plan in the registered CDM-PDD[2]. The Project has operated without any accidental or emergency events that might impact the accuracy and/or implementation of monitoring activities. The net power supply during this period is 191,627.9MWh. The total emission reductions in this monitoring period are 186,846tCO_2e.

A.2. Project Participants

[1] 72-hour full load and non-stop testing operation, then the unit goes into commercial operation if no accident happen.

[2] http://cdm.unfccc.int/Projects/DB/TUEV-SUED1205920632.77/view

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)
P.R. of China (host)	Hunan Xinshao Xiaoxi Hydropower Development Co., Ltd. (project owner)

A.3. Location of the project activity:

The Project is sited on the midstream of Zishui River within Xiaoxi Village, Pingshang Town, Xinshao County, Shaoyang City, Hunan Province, P.R. of China. The dam of the Project has geographical coordinates with east longitude of 111°26′50″ and north latitude of 27°34′30″. And the power house site of the Project has geographical coordinates with east longitude of 111°26′59″ and north latitude of 27°34′32″. The project site is 44 km to the downtown of Xinshao County and 58 km to the downtown of Shaoyang City.

A.4. Technical description of the project

The Project is a run-of-the-river hydropower plant of low-head mainly for generating electricity. Three sets of 40 MW Kaplan turbines and one set of 15 MW Kaplan turbine and corresponding generators which are made in China will be installed in the Project. The electricity generated by the Project will be delivered to the Central China Grid via two 110 kV outlet circuits.

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

The baseline methodology applied for the project is ACM0002 (Version 06):"Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

The monitoring methodology applied for the project is ACM0002 (Version 06):"Consolidated monitoring methodology for grid-connected electricity generation from renewable sources"

A.6. Name of responsible person(s)/entity(ies):

Mr. Jin Song
Accord Global Environment Technology (Beijing) Co., Ltd.
Email: songj@accordgetc.com

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

The project construction was commenced on October 20, 2004. The 1# Unit (40MW) was started commissioning on 28/01/2008 and commercially operated from 31/01/2008; the 2# Unit (40MW) was commercially operated from 01/05/2008; the 3# Unit was commercially operated from 07/08/2008; the 0# Unit (15MW) was commercially operated from 09/10/2008..
This project consists of one site only.
There were no special events or emergency situation during the monitoring period. No equipment was exchanged or overhauled.
No events occurred that affected the applicability of the methodology.

B.2. Revision of the monitoring plan

No revision.

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

No request for deviation was applied during this monitoring period.

B.4. Notification or request of approval of changes

No notification or request of approval of changes has been made.

SECTION C. Description of the monitoring system

1. Data collection procedures

The electric energy metering system was designed and installed according to DL/T 5137-2001 (Technical code for designing electricity measuring and energy metering device), during operation the energy metering system was managed according to the DL/T448-2000 (Technical administrative code of electric energy metering).

The measurement precision of the electricity meters employed by the Project is 0.2s, which should be calibrated at least once a year. Those electricity meters are bi-directional and can measure the feed-in electricity and the electricity bought from the Grid.

The electricity was send via two 110 kV outlet circuits, one is Xiaoti Line I and the other is Xiaoti Line II. Two electricity meters(one main and the other backup) were installed at the switch cabinet 502 in the Xiaoti Line I and two electricity meters(one main and the other backup) were installed at the switch cabinet 504 in the Xiaoti Line II to measure the feed-in electricity and the electricity bought from the Grid.

Table 1 the electricity meters of the Project

Switch cabinet number	outlet circuits name	Type of electricity meters	Serial number	Precision	Manufacturer	bi-directional?
502	Xiaoti Line I	AINRTAL-X	03218442 main	0.2S	ABB	YES
502	Xiaoti Line I	AINRTAL-X	03218403 backup	0.2S	ABB	YES
504	Xiaoti Line II	AINRTAL-X	03218443 main	0.2S	ABB	YES
504	Xiaoti Line II	AINRTAL-X	03218419 backup	0.2S	ABB	YES

2. Organizational structure, roles and responsibilities

The monitoring of the emission reductions is carried out according to the scheme shown in figure 1. The plant operation staff record the electricity exported to and imported from the grid and also keep record of daily operations of the project.

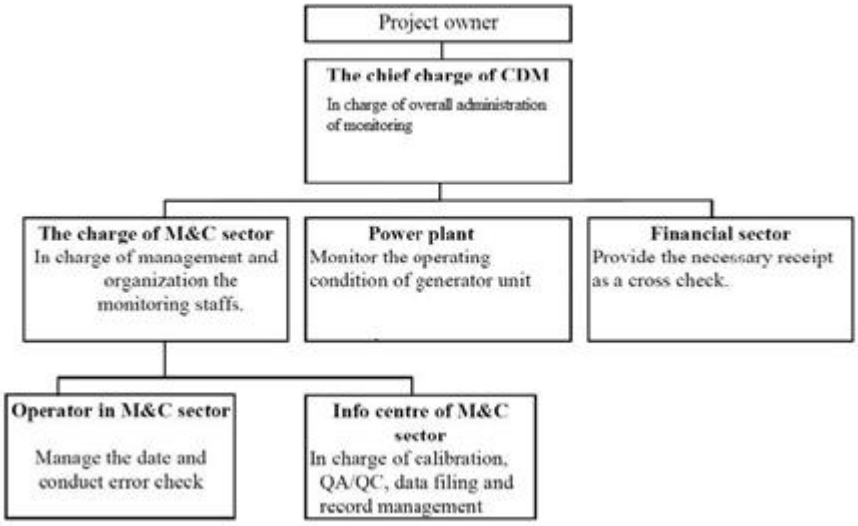


Figure 1. Management Structure of Monitoring Plan

The meters are measures monitored parameters continually, data is transmitted and displaced on computer of control system. Operation staffs record data every day and report to power station manager every month. Grid company aggregated monitored data every month and send to PO for confirmation. Emission reductions are calculated in each Monitoring Report.

3. **Emergency procedures for the monitoring system**

In case electricity meter is damaged and no reliable readings can be recorded, the project entity will estimate net supply by the project activity according to the following procedure:

1) In case electricity meter operated by project owner is damaged only:

The metering data logged by the grid company, evidenced by electricity transaction notes /purchase receipts will be used to calculate the net electricity supplied to the grid.

2) In case electricity meter operated by the grid company is damaged only:

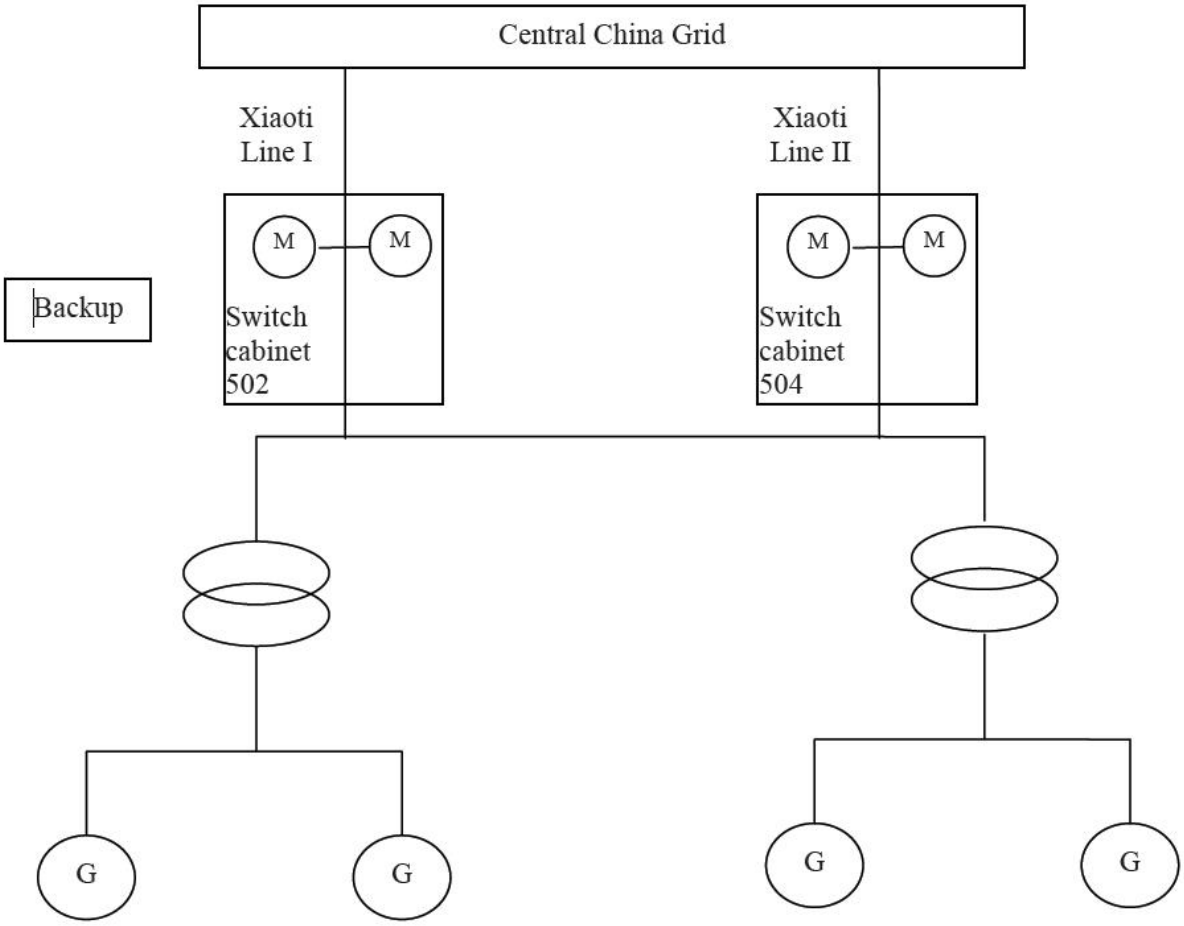
The metering data logged by the project owner will be used to calculate the net electricity supplied to the grid.

3) In case both metering equipment operated by project owner and grid company are damaged:

The project owner will not claim the emission reductions.

4. The monitoring system of the project

The line diagram showing meter location is as follows:


Central China Grid
Xiaoti
Line I
Xiaoti
Line II
M
M
M
M
Backup
Switch
cabinet
502
Switch
cabinet
504
G
G
G
G

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

(Copy this table for each data and parameter. To report multiple values, a table may be used)	
Data / Parameter:	$\boldsymbol{EF_y}$
Data unit:	tCO_2/MWh
Description:	Baseline emission factor of the Central China Grid in the monitoring period.
Source of data used:	National default value published by National Development and Reform Commission
Value(s) :	0.97505
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	This data is used for Baseline emission calculations

D.2. Data and parameters monitored

Data / Parameter:	$EG_{Delivery,y}$
Data unit:	MWh
Description:	Electricity delivered by the Project to the grid in the monitoring period.
Measured /Calculated /Default:	Measured
Source of data:	Measured by the electricity meters.
Value(s) of monitored parameter:	191,750
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculations
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Switch cabinet 502: two bi-directional electricity meter, serial no. are 03218442(main) and 03218403(backup); Switch cabinet 504: two bi-directional electricity meter, serial no. are 03218443(main) and 03218419(backup); Accuracy class: 0.2s, Calibration frequency: quarterly. Four meters were calibrated together every time and each calibration report involves all four meters; Calibration certificates No. and dates of calibration covering this

	monitoring period: 2008E02-1, 18/01/2008; 2008E02-2, 18/03/2008; 2008E02-3, 30/09/2008; 2008E02-4, 27/12/2008.
Measuring/ Reading/ Recording frequency:	The readings of electricity meter were continuously measured and hourly reading and monthly recorded.
Calculation method (if applicable):	--
QA/QC procedures applied:	Data measured by meters were cross checked by electricity transaction notes and/or invoices.

Data / Parameter:	$EG_{Aux,y}$
Data unit:	MWh
Description:	The electricity imported by the Project from the Central China Grid in the monitoring period
Measured /Calculated /Default:	Measured
Source of data:	Measured by the electricity meters.
Value(s) of monitored parameter:	122.1
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculations
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Switch cabinet 502: two bi-directional electricity meter, serial no. are 03218442(main) and 03218403(backup); Switch cabinet 504: two bi-directional electricity meter, serial no. are 03218443(main) and 03218419(backup); Accuracy class: 0.2s, Calibration frequency: quarterly. Four meters are calibrated together every time and each calibration report involves all four meters; Calibration certificates No. and dates of calibration covering this monitoring period: 2008E02-1, 18/01/2008; 2008E02-2, 18/03/2008; 2008E02-3, 30/09/2008; 2008E02-4, 27/12/2008.
Measuring/ Reading/ Recording frequency:	The readings of electricity meter were continuously measured and hourly reading and monthly recorded.

Calculation method (if applicable):	--
QA/QC procedures applied:	Meters were calibrated quarterly. Data measured by meters were cross checked by electricity transaction notes and/or invoices.

Data / Parameter:	EG_y
Data unit:	MWh
Description:	Net electricity delivered by the Project to the grid in the monitoring period
Measured /Calculated /Default:	Calculated
Source of data:	$EG_{Delivery,y}$ and $EG_{Aux,y}$
Value(s) of monitored parameter:	191,627.9
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculations
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	
Measuring/ Reading/ Recording frequency:	The data was calculated during this monitoring period.
Calculation method (if applicable):	$EG_y = EG_{Delivery,y} - EG_{Aux,y}$
QA/QC procedures applied:	

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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Baseline emissions in the monitoring period are calculated by multiplying the fixed baseline grid emission factor by net electricity delivered by the project to the Central China Grid in the monitoring period.

$BE_y = EG_y * EF_y$ (1)

$EG_y = EG_{Delivery,y} - EG_{Aux,y}$ (2)

where:

BE_y are the baseline emissions for the project activity during the monitoring period in tons of CO_2,

EG_y is the net electricity delivered to the grid by the project activity during the monitoring period in MWh,

EF_y is the combined baseline grid emission factor in tons of CO_2 per MWh,

$EG_{Delivery,y}$ is the electricity delivered by the project activity to the grid during the monitoring period in MWh,

$EG_{Aux,y}$ is the electricity imported by the project activity from the grid during the monitoring period in MWh

EF_y was calculated ex-ante and will not be changed during the monitoring period, it is 0.97505tCO_2e/MWh.

$BE_y = EG_y * EF_y$ =191,627.9 MWh×0.97505 tCO_2e/MWh =186,846tCO_2e

E.2. Project emissions calculation

The Project is a hydropower plant with a power density of 13.37 W/m^2, which is higher than 10 W/m^2, so that the project emissions should not be considered as per ACM0002, i.e. PE_y = 0tCO_2e.

E.3. Leakage calculation

According to the methodology ACM0002 the project leakage is not considered, and therefore, L_y=0

E.4. Emission reductions calculation / table

The emission reductions for the Project during the monitoring period can be calculated using the following formula:

$ER_y = BE_y - PE_y - L_y$ = 186,846-0-0 = 186,846tCO_2e

Total baseline emissions: 186,846tCO_2e

Total project emissions: 0tCO_2e

Total leakage: 0tCO_2e

Total emission reductions: 186,846tCO_2e

The End