



**Monitoring report form**  
**(Version 05.1)**

**MONITORING REPORT**

<b>Title of the project activity</b>	Guangrun Hydropower Project in Hubei Province, P.R.China
<b>UNFCCC reference number of the project activity</b>	0904
<b>Version number of the monitoring report</b>	01
<b>Completion date of the monitoring report</b>	11/08/2016
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring period Number: 03 Monitoring period Dates: 01/03/2014 to 29/06/2016 (first and last days included)
<b>Project participant(s)</b>	Guangrun Hydropower Development Company Ltd. ; Government of Canada – Ministry of Foreign Affairs & International Trade; Endesa Generación, S.A. ; Hidroeléctrica del Cantábrico, S.A. ; Kingdom of Spain – Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitiveness; Gas Natural SDG, S.A. ; EDP – Energias de Portugal, S.A.  Government of Luxembourg – Ministry of the Environment; Ministry for the Environment, Land and Sea; Netherlands' Ministry of Infrastructure and the Environment (IenM); Schweizerische Rückversicherungsgesellschafts AG (Swiss RE); Kingdom of Belgium – Walloon Region Ministry of the Environment; Bruxelles Environnement – IBGE; BASF SE; KfW; Daiwa Securities Co. Ltd. ; FUJIFILM Corporation; Idemitsu Kosan Co., Ltd.; JX Nippon Oil & Energy Corporation; The Okinawa Electric Power Corporation, Incorporated; Ruukki Metals Oy; Göteborg Energi AB; Statkraft Carbon Invest AS; Statoil ASA; Kommunalkredit Public Consulting GmbH
<b>Host Party</b>	People's Republic of China
<b>Sectoral scope(s)</b>	Scope 1 Energy industries (renewable / non-renewable sources)
<b>Selected methodology(ies)</b>	ACM0002 (Version 06) - "Consolidated methodology for grid-connected electricity generation from renewable sources"
<b>Selected standardized baseline(s)</b>	-
<b>Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the</b>	95,372 tCO <sub>2</sub> e

registered PDD		
Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	0 tCO <sub>2</sub> e	95,372 tCO <sub>2</sub> e

## SECTION A. Description of project activity

### A.1. Purpose and general description of project activity

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Guangrun Hydropower Project (GHP), a hydropower project with reservoirs, located in Jianshi County, Enshi Tujia and Miao Minority Autonomous Prefecture, Hubei Province, P. R. China. The objective of the project is to utilize water resource of the Majia River for electricity generation through the installation and operation of three hydro power stations. The total installed capacity of the project is 28.4 MW. The electricity supplied by the project is sold to Jianshi electricity grid, which is part of the Hubei Provincial Power Grid (HPPG) and Central China Power Grid (CCPG).

The project helps reduce GHG emissions generated from the high-growth, coal-dominated power generation. And also, it contributes to sustainable development in the region by reducing pollution, creating employment opportunities, and improving the living standard of local people. At a larger scale, the project assists China in stimulating and accelerating the commercialization of grid-connected renewable energy technologies and markets.

The construction of the project started in March 2007. There are four hydropower stations operated in this project, they were put into operation on 20/09/2009 (Hongwawu II station with capacity 10MW), 29/11/2010 (Hongwawu I station with capacity 8MW), 29/08/2012 (Zhamushui station with capacity 10MW), and 25/09/2012 (Kongzishan station with capacity 400kW), respectively. Hongwawu II station and Hongwawu I station share the same reservoir (Hongwawu reservoir), while Zhamushui station and Kongfuzi station share the same reservoir (Zhamushui reservoir).

This Monitoring Report is for the 3<sup>rd</sup> monitoring period, which is from 01/03/2014-29/06/2016. The total emission reduction achieved in this monitoring period is 95,372 tCO<sub>2</sub>e.

### A.2. Location of project activity

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The project is located in Jianshi County, Enshi Tujia and Miao Minority Autonomous Prefecture, Hubei Province, P. R. China. The three stations are sited in different country, details are as following:

Hongwawu I Station and Hongwawu II Station: Hongwawu Village, Yezhou Town;  
Zhamushui Station: Hongtuping Village, Yezhou Town.  
Kongzishan Station: Hongtuping Village, Yezhou Town.

All four of the project's hydropower stations are on the Majia River which is the branch of Qingjiang river system.

The geographical coordinates of the project are as following:

Sites	East Longitude	North Latitude
Plant of Hongwawu I Station	110.0028°	31.1544°
Plant of Hongwawu II Station	109.6661°	30.6875°
Plant of Zhamushui Station	109.6833°	30.6181°
Plant of Kongzishan Station	109.6833°	30.6181°

### A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
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Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Guangrun Hydropower Development Company Ltd.	No
Canada	Government of Canada – Ministry of Foreign Affairs & International Trade	Yes
Spain	Endesa Generación, S.A. ; Hidroeléctrica del Cantábrico, S.A. ; Kingdom of Spain – Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitiveness; Gas Natural SDG, S.A. ; EDP – Energias de Portugal, S.A.	Yes
Luxembourg	Government of Luxembourg – Ministry of the Environment	Yes
Italy	Ministry for the Environment, Land and Sea	Yes
Netherlands	Netherlands' Ministry of Infrastructure and the Environment (IenM)	Yes
Switzerland	Schweizerische Rückversicherungsgesellschafts AG  (Swiss RE)	No
Belgium	Kingdom of Belgium – Walloon Region Ministry of the Environment;  Bruxelles Environnement – IBGE	No
Germany	BASF SE ; KfW	No
Japan	Daiwa Securities Co. Ltd.; FUJIFILM Corporation ; Idemitsu Kosan Co., Ltd. ; JX Nippon Oil & Energy Corporation ; The Okinawa Electric Power Corporation, Incorporated	No
Finland	Ruukki Metals Oy	No
Sweden	Göteborg Energi AB	No
Norway	Statkraft Carbon Invest AS; Statoil ASA	No
Austria	Kommunalkredit Public Consulting GmbH	No

#### A.4. Reference of applied methodology and standardized baseline

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Approved consolidated baseline methodology ACM0002: “Consolidated methodology for grid-connected electricity generation from renewable sources” (Version 06 dated 19/05/2006, Sectoral Scope 01).

Reference:

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

**A.5. Crediting period of project activity**

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Due to a delay in the implementation of the project, a request was submitted and approved by UNFCCC Secretariat to change the start date of the crediting period of this project from 01/07/2008 to 30/06/2009.

Crediting Period: 30/06/2009 - 29/06/2016 (Renewable)

Changed from: 01/07/2008 - 30/06/2015

**A.6. Contact information of responsible persons/entities**

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The contact information of responsible persons/entities are as followed:

**Organization name:** Guangrun Hydropower Development Company Ltd.

**Address:** No.39 Wenyuan Road, Yezhou Town, Jianshi County, Enshi Tujia and Miao Minority Autonomous Prefecture, Hubei Province

**Postcode:** 445300

**Contact person:** Aimin Yao

**Title:** Vice President

**Salutation:** Mr.

**Mobile:** +86 13343558760; +86 13971222716

**Direct TEL:** +86 718 3234768

**Direct FAX:** +86 718 3234768

**E-Mail:** raoaiming999@163.com

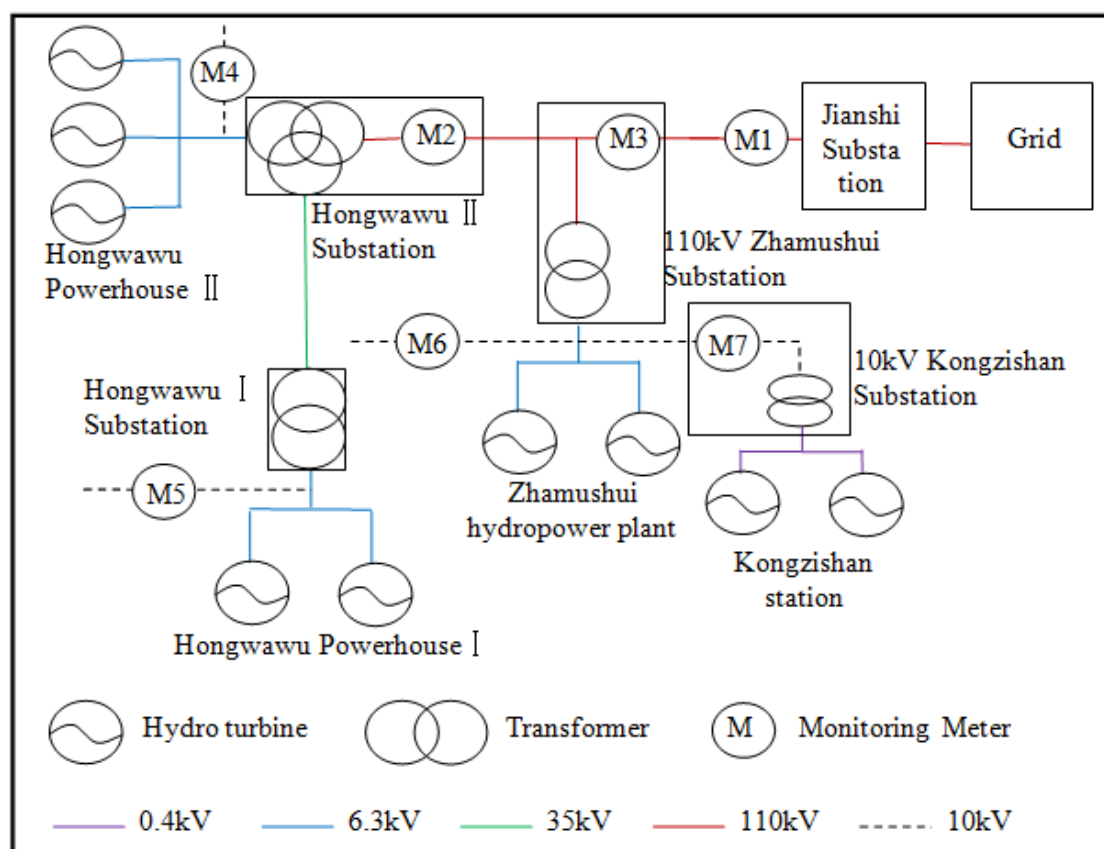
The organization is a project participant of the Project and the responsible entity for completing the CDM-MR-FORM. Mr. Aimin Yao is the authorised signatory of the organization and the responsible person for completing the CDM-MR-FORM. Please refer to Appendix 1 for the detailed contact information.

**SECTION B. Implementation of project activity****B.1. Description of implemented registered project activity**

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The project activity was started construction in March 2007. Hongwawu II station, Hongwawu I station, Zhamushui station and Kongzishan station were put into operation on 20/09/2009, 29/11/2010, 29/08/2012 and 25/09/2012, respectively. Technology and equipment adopted in the Project are consistent with the revised PDD version 4.0 dated 05/08/2014.

Each substation (Hongwawu Substation and Zhamushui Substation) consists of a relatively low concrete gravity dam, a narrow reservoir, and an above-ground powerhouse to produce electricity that transmits through 110kV high voltage transmission lines to Jianshi Substation which connects the CCPG by high voltage transmission lines, the technology diagram of the Project is presented as follows:



The main parameters are as the following table:

Station	Hongwawu Station I	Hongwawu Station II	Zhamushui Station	Kongzishan Station
Manufacturer	Fujian Nanping	Fujian Nanping	Fujian Nanping	Wei Long
Generator	SFW 4000-8/2150	SFW 4000-8/2150 SFW 2000-8/1730	SF5000-10/2600	SFW200-6/740
Hydroturbine	CJA475-W-110/2×10	CJA475-W-110/2×10 CJA475-W-110/1×10	HLN255-LJ-105	HLD46-WJ-42
Number of units	2	3	2	2
Total Capacity (MW)	8	10	10	0.4
Rotational speed (rpm)	750	750	600	1000
Rated head (m)	415.43	415.43	63.56	60.6

There was no significant malfunction or any emergency overhaul times, downtimes of equipment, exchange of equipment reported during this monitoring period from 01/03/2014-29/06/2016.

The project implementation follows the Revised PDD version 5.1 dated 04/05/2015. No events or situations which may impact the applicability of the methodology occurred during this monitoring period.

**B.2. Post-registration changes****B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline**

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Not applicable.

**B.2.2. Corrections**

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Not applicable.

**B.2.3. Changes to start date of crediting period**

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The first crediting period has been changed from 01/07/2008-30/06/2015 to 30/06/2009-29/06/2016, and is listed on the project page. The crediting period is renewable.

**B.2.4. Inclusion of a monitoring plan to the registered PDD that was not included at registration**

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Not applicable.

**B.2.5. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline**

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There are some permanent changes from the revision of monitoring plan approved on 27/12/2011 due to the changes to project design of registered project activity.

**B.2.6. Changes to project design of registered project activity**

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The project design of registered project activity has been changed.

In the registered CDM-PDD, there are three power stations (Hongwawu I, Hongwawu II and Zhamushui) with the total installed capacity of 28 MW implemented and operated by the project activity. However, on 25/09/2012, the Kongzishan station with the installed capacity of 400kW was put into commercial operation. Then, the project activity has four power stations (Hongwawu I, Hongwawu II, Zhamushui and Kongzishan) with the total installed capacity of 28.4 MW.

**B.2.7. Types of changes specific to afforestation or reforestation project activity**

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Not applicable.

**SECTION C. Description of monitoring system**

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This section details the steps taken to monitor the GHG emissions reductions on a regular basis from the Guangrun Hydropower Project in Hubei Province, P.R.China.

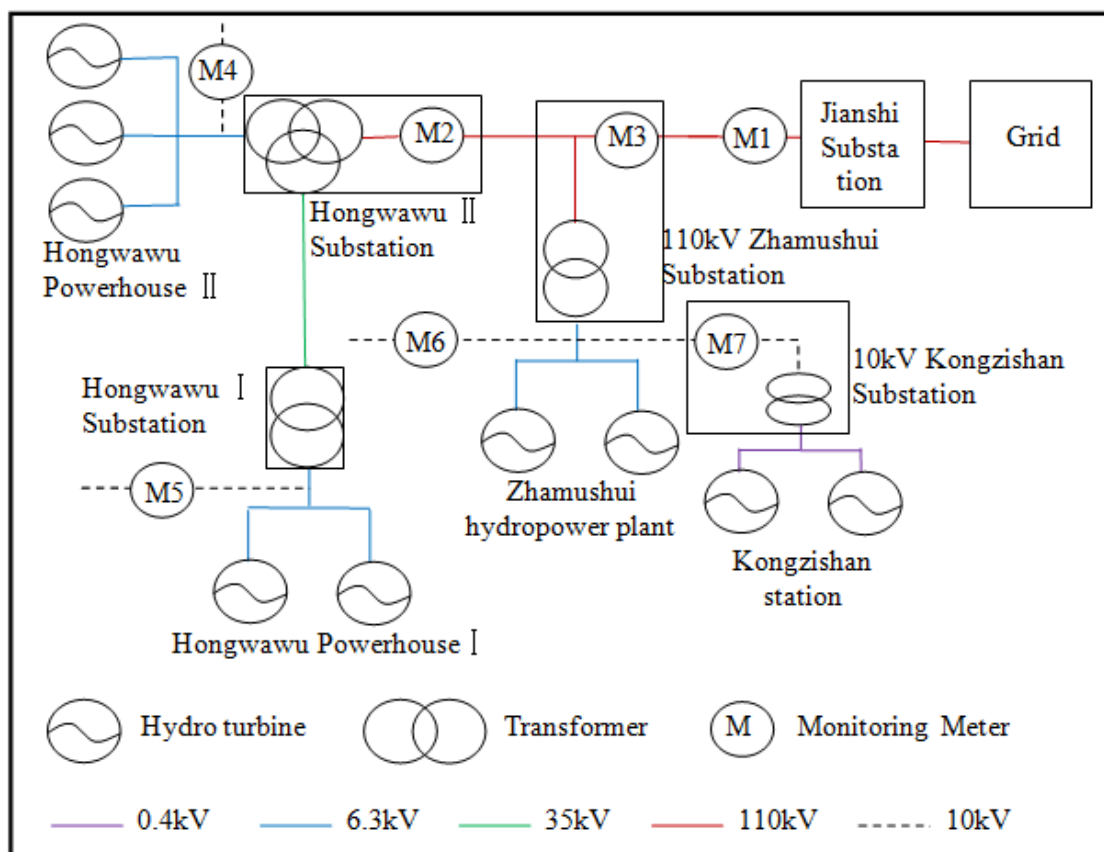
The Monitoring set up for this project has been developed to ensure that from the start, the project was well organised in terms of the collection and archiving of complete and reliable data.

All hydropower stations interconnected with the regional grid at Jianshi Substation in Jianshi County owned by HPPG. A meter M1 installed at Jianshi Substation is used to monitor electricity exported to the grid and imported from the grid via main line. The accuracy of the meter (M1) is 0.2s and calibrated annually by qualified staff in Jianshi Electric Power Company. A meter M2 is installed at Hongwawu II Substation in the project site to measure the electricity export and import of Hongwawu I and II stations. A meter M3 is installed in 110kV Zhamushui Substation to measure the electricity export and import of the project. A meter M7 is installed in 10kV Kongzishan

Substation to measure the electricity export and import of Kongzishan Station. The meter readings of M2, M3 and M7 are not used in emission reduction calculation, but only as internal reference for project company, the accuracy and calibration of meter M2, M3 and M7 are in compliance with relative national standard DL/T448-2000.

10 kV backup line at each plant (Hongwawu I hydropower plant, Hongwawu II hydropower plant and Zhamushui hydropower plant) are used to supply electricity to the plant in emergent case when the main power line fails to supply power. Meter M4, M5 and M6 are installed to measure the electricity imported from the grid via these lines. These meters are owned, maintained, read and monthly recorded by grid company. Only grid company has access to these meters. Sales receipts of electricity imported from the grid via backup lines are issued to the project company by grid company accordingly in an approach which is agreed by both parties. Accuracy and calibration of meter M4, M5 and M6 are in compliance with relative national standards DL/T448-2000. Calibration reports of these meters are provided to DOE by grid company for verification. During this monitoring period, there is no supplied electricity to the plant through backup lines and 10 kV backup line for Zhamushui Hydropower has not set up yet.

A line diagram of the monitoring system for the project is presented as follows:



Note: Serial No. of main meter (M1) is 212484124 (replaced the meter M1 with serial No.09090158090077 on 21/05/2013; Serial No. of meter (M2) is 96129233; Serial No. of meter (M3) is 110607361800035; Serial No. of M4 is 20061174020308; Serial No. of M5 is 20070957010566; Serial No. of M7 is 09090158090077 (replaced the meter M7 with serial No. 20001110969988 on 06/06/2013).

Electricity supplied to the grid by the project ( $EG_v$ ) is calculated as electricity exported to the grid by the project minus electricity imported from the grid via main line and electricity imported from the grid via backup lines. Meter readings of electricity exported to the grid by the project and electricity imported from the grid via main line are cross checked by their own corresponding sales receipts to ensure the conservativeness of emission calculation. Values from the sales receipts of electricity imported from the grid via backup lines are used for emission calculation as only grid company is accessible to the meters and grid company is not likely to underestimate the electricity sold to

project company.

The amount of electricity that has been delivered by the project to the electric grid is recorded every month jointly by designated staff of Project Company and Electric Power Company<sup>1</sup>. After that, Electric Power Company paid to the project company within a certain period based on the monthly meter readings and the project company gave corresponding receipt.

The meter readings were double checked with the sales receipts, and in the procedure of the calculation of the ERs, the conservative values are selected, which means that the minimum value of the electricity exported and the maximum value of the electricity imported are chose. All CDM relevant data are measured and collected as detailed in Section D. All data required for verification and issuance are backed-up and retained for at least two years after the end of the crediting period or the last issuance of CERs of the Project, whichever occurs later.

An independent consulting company (Hubei Institute of Survey&Design for Water Resources&Water Power Engineering) was entrusted to measure the surface area at full reservoir level at the start of project. The entity has provided the surface area which was 240,200 m<sup>2</sup> for Hongwawu reservoir and 790,000 m<sup>2</sup> for Zhamushui reservoir.

Procedures for ensuring effective monitoring of the project are described in a document "CDM Project Management and Operating Procedures" that the Project Company utilizes.

The grid emission factor is 0.9244 tCO<sub>2</sub>e/MWh determined ex ante and is used throughout the crediting period.

#### **Maintenance and calibration of monitoring equipment**

The electricity meter(s) were calibrated the accuracy in compliance with relative national standard DL/T448-2000.

Documents evidencing the calibrations are available and are archived.

#### **Data Quality Control and Quality Assurance**

All data collected on-site are checked internally before being compiled in an electronic format, to ensure that it is complete and of appropriate quality.

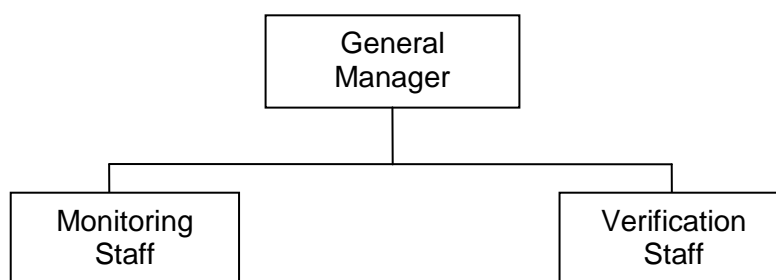
#### **Monitoring Organisation**

The Monitoring Plan states the roles and responsibilities of persons involved in the monitoring of grid-connected electricity generation by the project.

This monitoring plan is implemented by professional staff authorized by the project sponsor. The management structure is illustrated as follows:

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<sup>1</sup> Before 26/11/2012, the Electric Power Company is Jianshi Electric Power Company. From 26/11/2012 on, the Electric Power Company is changed to Hubei Electric Power Company. The two companies have all identified the exact points at which the amount of electricity exported to and imported from the grid will be measured together with the project company.



The responsibilities of the project staff are as follow:

General Manager: To be responsible for supervising the whole monitoring procedure.

Monitoring Staff: To be responsible for collecting data and do internal audit.

Verification Staff: To be responsible for collection of sales receipts.

When error happens, Error Handling Procedure will be followed as it is required in the “CDM Project Management and Operating Procedures” by the Project Company.

Training for the above staff is conducted on-site to ensure that staffs are capable of performing their designated tasks to high standards. This includes CDM specific training to warrant that they understand the importance of complete and accurate data and records for CDM monitoring.

### Emergency procedures

The accuracy of the main meter M1 is 0.2s. The meters are properly calibrated following relevant provision in applicable national standard. Calibration is carried out by the competent entity with the records being provided to the project owner.

In case of that the main meter is out of service, the grid company and the project owner will jointly calculate a conservative estimation of the electricity missed. If the grid company and the project owner fail to reach an agreement concerning a conservative estimation of the electricity missed, this matter will be submitted for arbitration according to agreed procedures.

In case of that the 10kV backup line meter is out of service, the electricity purchased by the Project through the 10kV backup line will be resolved by following measures:

- I The grid company and the project owner will jointly prepare a new agreement of correct reading;
- II If the grid company and the project owner fail to reach an agreement concerning the correct reading, this matter will be submitted for arbitration according to agreed procedures.

## SECTION D. Data and parameters

### D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter:	<b>CM</b>
Unit	tCO <sub>2</sub> e/MWh
Description	Combined margin emission factor.
Source of data	China Electric Power Yearbook (2001, 2002, 2003, 2004, 2005)
Value(s) applied)	0.772

Choice of data or measurement methods and procedures	Registered PDD
Purpose of data	Baseline emission calculations
Additional comments	The baselines emission factor was determined ex ante and will be used throughout the first crediting period.

## D.2. Data and parameters monitored

Data / Parameter:	EGy		
Unit:	MWh		
Description:	Net electricity supplied to the grid by the project in period y.		
Measured/ Calculated / Default:	Directly measured. EGy equals to the electricity exported to the grid by the project minus electricity imported from the grid via main line and electricity imported from the grid via backup lines.		
Source of data:	Monthly reading records of the main meter M1.		
Value(s) of monitored parameter:	103,172.024		
Monitoring equipment:	The main meter M1:		
		The old main meter M1	The new main meter M1
	Type	Electricity energy meter	Electricity energy meter
	Accuracy class	0.2s	0.2s
	Serial No.	09090158090077	212484124
	Calibration frequency	annually	annually
	Date of last calibrations	31/03/2010 25/03/2011 20/03/2012	21/05/2013 18/02/2014 08/01/2015 08/01/2016
	Validity	19/03/2013	14/02/2017
	The main meter M1 was changed by a new one on 21/05/2013. The meter type and the accuracy class of the new main meter M1 are all consist with the old one.		
	Meter M2:		
	Type	Electricity energy meter	
	Accuracy class	0.5s	
	Serial No.	96129233	
	Calibration frequency	annually	
	Date of last calibrations	16/09/2010 10/09/2011 10/09/2012 10/09/2013 10/09/2014 10/09/2015	
	Validity	09/09/2016	
	Meter M3:		
Type	Electricity energy meter		
Accuracy class	0.2s		
Serial No.	110607361800035		
Calibration frequency	annually		
Date of last calibrations	20/08/2012 20/08/2013		

	20/08/2014 20/08/2015
Validity	19/08/2016

Meter M7:

	The old meter M7	The new meter M7
Type	Electricity energy meter	Electricity energy meter
Accuracy class	0.5s	0.2s
Serial No.	20001110969988	09090158090077
Calibration frequency	Annually	annually
Date of last calibrations	02/09/2012	06/06/2013 20/03/2014 20/03/2015 20/03/2016
Validity	01/09/2013	19/02/2017

The meter M7 was changed by a new one on 06/06/2013.

10 kV backup line meters:

	M4	M5
Type	Electricity energy meter	Electricity energy meter
Accuracy class	1.0	1.0
Serial No.	20061174020308	20070957010566
Calibration frequency	In compliance with relative national standard DL/T448-2000.	
Date of last calibrations	24/02/2007 15/02/2012	24/08/2009 15/02/2012
Validity	14/02/2017	14/02/2017

Measuring/ Reading/ Recording frequency:	The electricity is continuously measured and monthly recording.
Calculation method (if applicable):	The net electricity supplied to the grid is the electricity exported to the grid minus the electricity imported from the grid
QA/QC procedures:	The electricity generation from the plant is monitored and recorded at the central control room. The project operator is responsible for recording such data. Receipts for electricity sales are used for crosscheck.
Purpose of data:	Baseline Emission calculation
Additional comment:	N/A

<b>Data / Parameter:</b>	<b>Surface area</b>
Unit:	m <sup>2</sup>
Description:	Surface area at full reservoir level
Measured/ Calculated / Default:	Measured at start of project
Source of data:	Reservoir area measurement document
Value(s) of monitored parameter:	Hongwawu reservoir : 240,200 m <sup>2</sup> (Hongwawu station I and Hongwawu station II share the same reservoir) Zhamushui reservoir: 790,000 m <sup>2</sup> (Zhamushui station and Kongzishan station share the same reservoir)
Monitoring equipment:	Project Emission Calculations
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	The project company entrusted Hubei Institute of Survey&Design for Water Resources&Water Power Engineering, an independent professional hydro power

	design institute, to conduct an ex-post measurement of the surface area. Report regarding with the calculation of the surface area is issued by the design Institute, which is based on the three station-reservoir maps, and auto CAD software was used on computer with interpolation method and area inquire function to get the results.
QA/QC procedures:	Not applicable
Purpose of data:	Not applicable
Additional comment:	N/A

### D.3. Implementation of sampling plan

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No applicable.

## SECTION E. Calculation of emission reductions or GHG removals by sinks

### E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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Baseline emissions ( $BE_y$  in tCO<sub>2</sub>e) are the product of the baseline emission factor ( $EF_{grid,CM,y}$  in tCO<sub>2</sub>e/MWh) multiplied by the net electricity delivered by the Project to the grid in period y. ( $EG_y$  in MWh):

$$BE_y = EG_y \times EF_{grid,CM,y}$$

Where

$EG_y$  — Net electricity supplied to the grid by the project in period y. (MWh).

$EF_{grid,CM,y}$  — Baseline Emission Factor (tCO<sub>2</sub>e /MWh) (0.9244tCO<sub>2</sub>e/MWh, as calculated ex-ante in the registered PDD and was not updated during the crediting period).

The electricity export to the grid measured by the meter (M1) installed at the Jianshi Substation was aggregated on designated time in every month (at 24:00 27<sup>th</sup> of each month from Jan. 2011 to Nov. 2012, and at 24:00 of the last day of each month from Dec. 2012 to June. 2016), the electricity import to the grid measured by the meter (M1) installed at the Jianshi Substation was aggregated on designated time in every month (normally at 24:00 of the last day of each month).

The net electricity supplied to the grid during this monitoring period covering from 01/03/2014 to 29/06/2016 which is:  $EG_y=103,174.896$  MWh.

Electricity exported to the grid by the project(MWh)	Electricity import from the grid (MWh)	EG <sub>y</sub> (MWh)
A	B	C=A-B
103,174.896	2.872	103,172.024

According to the registered PDD, the Emission factor of the grid is determined ax-ante; the ax-ante determined emission factor is 0.9244tCO<sub>2</sub>e/MWh.

$$BE_y = EG_y \times EF_y = 103,172.024 \text{ MWh} \times 0.9244 \text{ tCO}_2\text{e/MWh} = 95,372 \text{ tCO}_2\text{e}.$$

**E.2. Calculation of project emissions or actual net GHG removals by sinks**

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After the Hongwawu stations (Hongwawu I hydropower station and Hongwawu II hydropower station), Zhamushui station and Kongzishan station started commissioning, the ex-post monitoring by a third-party independent hydro power design institute (Hubei Institute of Survey&Design for Water Resources&Water Power Engineering) shows that the surface area at full reservoir level of Hongwawu stations is 240,200 m<sup>2</sup> and 790,000 m<sup>2</sup> for Zhamushui station and Kongzishan station. The re-calculated Power Density of the Hongwawu stations is 74.94 W/m<sup>2</sup> and the re-calculated Power Density of the Zhamushui station and Kongzishan station is 13.16 W/m<sup>2</sup>, which are calculated as following:

$$\text{Hongwawu stations: } Powerdensity = \frac{CAP_{PJ}}{Area} = \frac{18,000,000W}{240,200m^2} = 74.94W / m^2$$

$$\text{Zhamushui station: } Powerdensity = \frac{CAP_{PJ}}{Area} = \frac{10,400,000W}{790,000m^2} = 13.16W / m^2$$

$CAP_{PJ}$  is the capacity (W) of the proposed project, which is equal to 18,000,000W of the capacity of Hongwawu stations and 10,400,000W of the capacity of Zhamushui station and Kongzishan station.

Area is the surface area of the newly constructed reservoir at full reservoir level which was monitored at the beginning of the project using map of the reservoir.

Hence, according to ACM0002 (Version 06), the power density exceed the 10 W/m<sup>2</sup>, no Project Emissions is to be counted by the Project.

Hence,  $PE_y=0$

**E.3. Calculation of leakage**

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According to ACM0002 (Version 06) and registered PDD, the main indirect emissions potentially giving rise to leakage in the context of electric sector projects result from power plant construction, fuel handling (mining, processing, and transportation) and land inundation (for hydroelectric projects). The project developer does not need to consider such indirect emissions when applying the methodology. Project activities using this baseline methodology shall not claim any credit for the project on account of reducing these emissions below the level of the baseline scenario. The leakage from the project is zero.

$L_y=0$

**E.4. Summary of calculation of emission reductions or net GHG removals by sinks**

Item	Baseline emissions or baseline net GHG removals by sinks (t CO <sub>2</sub> e)	Project emissions or actual net GHG removals by sinks (t CO <sub>2</sub> e)	Leakage (t CO <sub>2</sub> e)	GHG emission reductions or net GHG removals by sinks (t CO <sub>2</sub> e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
<b>Total</b>	95,372	0	0	0	95,372	95,372

**E.5. Comparison of actual emission reductions or net GHG removals by sinks with estimates in registered PDD**

Item	Values estimated in ex ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO <sub>2</sub> e)	177,011	95,372

**E.6. Remarks on difference from estimated value in registered PDD**

&gt;&gt;

The emission reductions achieved by the project during this monitoring period are significantly lower than the estimates in the registered PDD. And it is conservative.

## Appendix 1. Contact information of project participants and responsible persons/entities

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input checked="" type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Guangrun Hydropower Development Company Ltd.
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<b>E-mail</b>	
<b>Website</b>	
<b>Contact person</b>	
<b>Title</b>	Vice President
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<b>Middle name</b>	
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>Contact person</b>	Jose Andreu
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## Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> <li>• Include provisions related to delayed submission of a monitoring plan;</li> <li>• Provisions related to the Host Party;</li> <li>• Remove reference to programme of activities;</li> <li>• Overall editorial improvement.</li> </ul>
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> <li>• Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0));</li> <li>• Include provisions related to standardized baselines;</li> <li>• Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1;</li> <li>• Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>;</li> <li>• Editorial improvement.</li> </ul>
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		