



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

*Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.*

**MONITORING REPORT**

<b>Title of the project activity</b>	Yunnan Jiayan Hydropower Project	
<b>UNFCCC reference number of the project activity</b>	9031	
<b>Version number of the monitoring report</b>	01	
<b>Completion date of the monitoring report</b>	05/04/2016	
<b>Monitoring period number and duration of this monitoring period</b>	1 <sup>st</sup> monitoring period, 1064 days, (01/02/2013 to 31/12/2015, first and last days included)	
<b>Project participant(s)</b>	Yunnan Dianneng Luquan Dianlin Development Co., Ltd. (project owner) Baraka Global Advisors (withdrawn)	
<b>Host Party</b>	P.R. China	
<b>Sectoral scope(s)</b>	1 : Energy industries (renewable - / non-renewable sources)	
<b>Selected methodology(ies)</b>	ACM0002 ver. 13 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources	
<b>Selected standardized baseline(s)</b>	N/A	
<b>Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD</b>	1,132,757tCO <sub>2</sub> e	
<b>Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period</b>	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	760,939tCO <sub>2</sub> e

## SECTION A. Description of project activity

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

>>

Yunnan Jiayan Hydropower Project (hereafter referred to as the Project) is located at downstream of Puduhe River in Luquan County, Kunming City, Yunnan Province. The Project is constructed and operated by Yunnan Dianneng Luquan Dianlin Development Co., Ltd.

The Project is a diversion type hydropower station with 240MW (3×80MW) installed capacity. The Project has a water surface area of 3,570,000m<sup>2</sup> at full reservoir level with a responding power density of 67.23W/m<sup>2</sup> which is far more than 4W/m<sup>2</sup>. Annual average electricity generation of the Project is 1,099,000MWh, and it is estimated that the feed-in electricity of the Project to the China Southern Power Grid is 1,093,505MWh per year, and electricity generated will be delivered to the China Southern Power Grid via one 220kV outlet circuit.

The Project will carry out GHG reduction by replace the China Southern Power Grid mainly composed of fossil-fuel power plants. It is estimated the annual GHG reduction of the Project will reach 780,106tCO<sub>2</sub>e.

Project timeline

Construction start date	19/05/2009
Commissioning start date	20/06/2014
Date of full turbines operation	13/08/2014
Date of CDM registration	24/12/2012
Version of the registered PDD	04.3
Date of the registered PDD	25/10/2012
First renewable crediting period	01/02/2013 – 31/01/2020
Starting date of crediting period	01/02/2013
Current monitoring period	
Volume 1	01/02/2013-31/12/2015
End date of crediting period	31/01/2020

The total emission reductions achieved in the current monitoring period are 760,939tCO<sub>2</sub>e.

### A.2. Location of project activity

>>

The Project is located at downstream of Puduhe River in Luquan County, Kunming City, Yunnan Province. The dam site is located at 1.5km of downstream of Yujiao Village, Xueshan Town, Luquan County, the geographic coordinate of the dam site is 26.1522 °N, 102.7561 °E; and the powerhouse is located at 1.5km from Zeni Village, Zehei Town, Luquan County of the downstream of Puduhe River, the geographic coordinate of the powerhouse is 26.2000 °N, 102.7636 °E. Detailed physical location of the Project follows as Fig 1 and Fig 2.

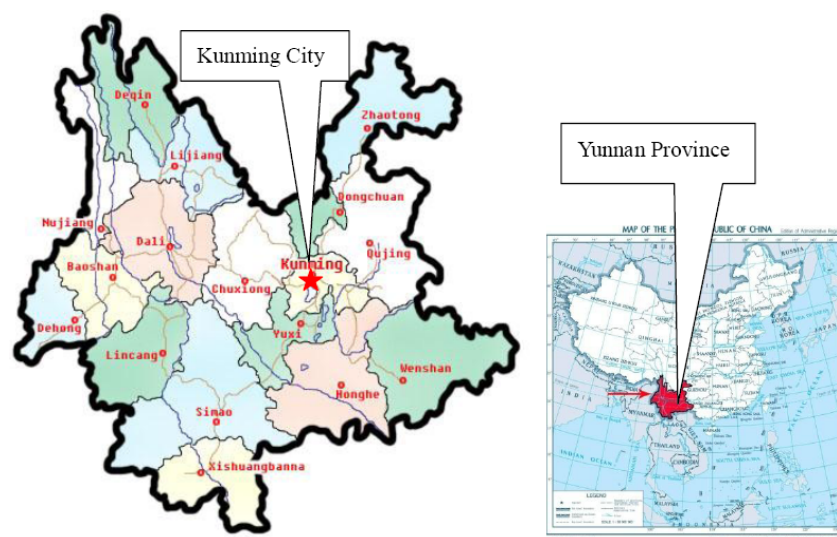


Fig 1 the location of Kunming in Yunnan and Yunnan in China



Fig 2 Detailed physical location of the Project

### 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 whether the Party involved wishes to be considered as project participant (yes/no)
P.R. China (host)	Yunnan Dianneng Luquan Dianlin Development Co., Ltd.	No
Netherlands	Baraka Global Advisors(withdrawn)	No

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

&gt;&gt;

ACM0002– “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 13.0.0).

For more information, please refer to:

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

Tool for the Demonstration and Assessment of Additionality (Version 06.0.0).

Tool to calculate the emission factor for an electricity system (Version 02.2.1).

Guidelines on Common Practice (Version 02.0)

For more information, please refer to:

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

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

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Crediting period	First renewable crediting period
Starting date of crediting period	01/02/2013
End date of crediting period	31/01/2020

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

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The MR of the Project was completed on 05/04/2016 by Maqian of China Carbon Futures (Beijing) Asset Management Co., Ltd.

Address: Room1501, office Tower one, Henderson Center, No.18 Jianguomennei Avenue, Dongcheng District, Beijing, China.

Telephone : (8610)6518 8130; Fax: (8610)6518 8130

Email: qian.ma@ccarbon.cn

### SECTION B. Implementation of project activity

#### B.1. Description of implemented registered project activity

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The Project, which is located at Puduhe River, is a diversion type hydropower station with total installed capacity of 240MW (3×80MW), 150m rated water head and 60.5m<sup>3</sup>/s rated flow. Three sets of 80MW turbines and associated generators which are made in China are installed in this plant. It is estimated that the feed-in electricity to the China Southern Power Grid is approximately 1,093,505MWh per year, and electricity generated are delivered to 220kV Zhongping Substation through one 220kV outlet circuit. The parameters of the 3 sets of turbine-generator unit are provided in the table as below.

Table 1 the type and parameter of turbines and generators of the Project

Equipment	Item	Parameter
Water turbine	Type	HLA800-LJ-280
	Number	3
	Rated water head	150m
	Rated flow	59.2m <sup>3</sup> /s
	Rated rotational speed	300r/min
Generator	Type	SF80-20/6500
	Number	3
	Rated Power	80MW

<b>Main Transformer</b>	Rated Voltage	13.8kV
	Rated Power factor	0.85
	Type	SSP11-100000/220
	Rated capacity	100000kVA

The Project was commissioned on 20/06/2014 (Commissioning date of No.3 Generator). No.2 and No.1 Generator were commissioned on 26/07/2014 and 13/08/2014 respectively. The implementation of the project is in consistent with the registered PDD. This project consists of one site only and the implementation is not phased.

During this monitoring period, the hydropower station has a good running, smooth data transfer and grid connection, and no special events happened.

No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

The process diagram is provided in the figure as below.

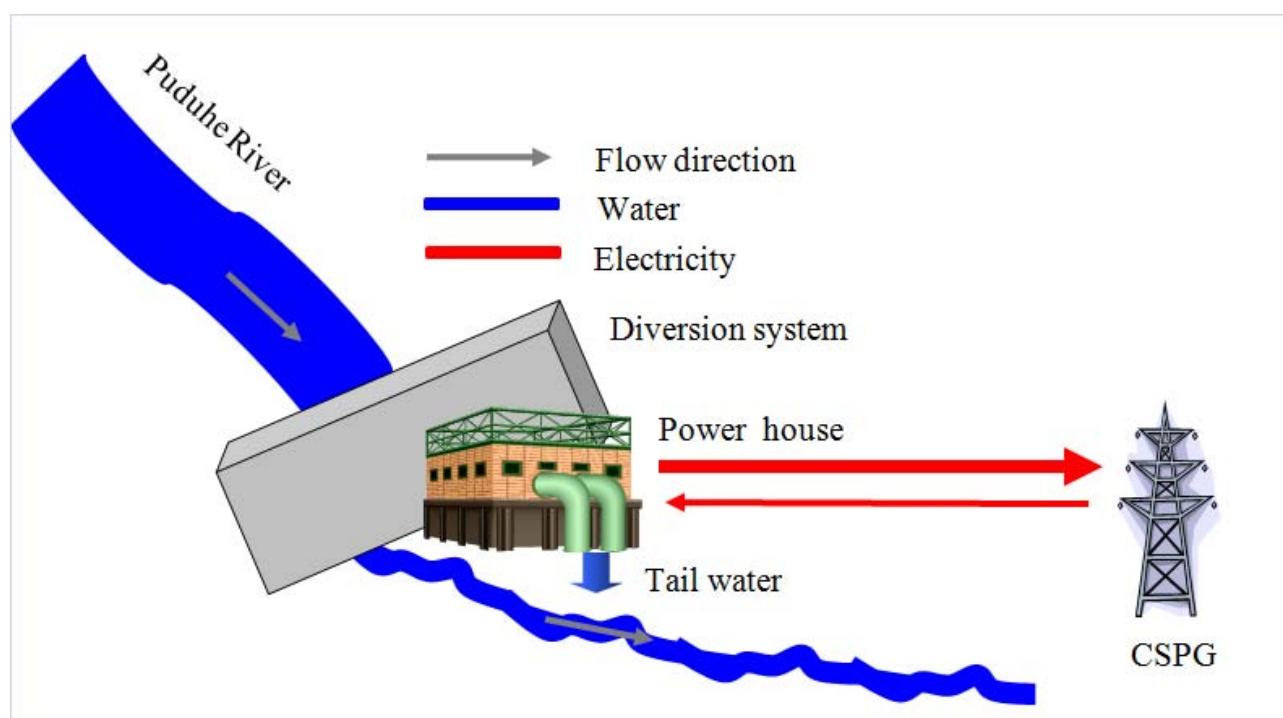


Fig 3 Process diagram of the Project

## B.2. Post-registration changes

### B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

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There are no temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline to this project.

### B.2.2. Corrections

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The project activity is implemented as in the registered CDM-PDD, no corrections is applied.

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

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There are no any changes to the start date of the crediting period have been approved during this monitoring period or submitted with this monitoring report.

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

>>

There is inclusion of a monitoring plan to the registered PDD that was not included at registration during this monitoring period.

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

>>

There have been permanent changes from the registered monitoring plan, applied methodologies or applied standardized baseline which is the change of location of meters as per a power purchase agreement (PPA). According to the "Clean development mechanism project standard" that issued by EB 65, there's no requirement prior approval by the Board.

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

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There have been no changes to the project design of the project activity submitted or approved during this monitoring period with this monitoring report.

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

>>

Not applicable.

## **SECTION C. Description of monitoring system**

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### **1. Monitoring system and data collection**

According to the power purchase agreement (PPA), the revised registered PDD and the applied methodology, one bi-direction main meters (Meter A and A') with 0.2S precision, which measure the feed-in electricity (electricity from the Project to CSPG) and imported electricity (electricity from CSPG to the Project), is installed at 220KV transmission line at plant side. And Net feed-in electricity ( $EG_{\text{facility},y}$ ) can be calculated as difference between the feed-in electricity ( $EG_{\text{feed-in},y}$ ) and the imported electricity ( $EG_{\text{imported},y}$ ). Net feed-in electricity ( $EG_{\text{facility},y}$ ) can be calculated as difference between the total feed-in electricity ( $EG_{\text{feed-in},y}$ ) and the total imported electricity ( $EG_{\text{imported},y}$ ). At 24:00 of the last day of each month, assigned staff of project owner read and recorded the data of the feed-in electricity and imported electricity and supplied the monthly readings of the main meters to the Grid Company. After the amount of the feed-in electricity and imported electricity being agreed by the project owner and the grid company, ETN (Electricity Transaction Note) of the feed-in electricity and imported electricity were issued by the grid company, invoices of the feed-in electricity and receipts of imported electricity were issued by the project owner and the grid company respectively. The feed-in electricity has been crosschecked with the invoices and imported electricity has been crosschecked with the receipts during this monitoring period.

The location of the meters in relation to the grid, the project and the transmission lines are displayed as following diagram:

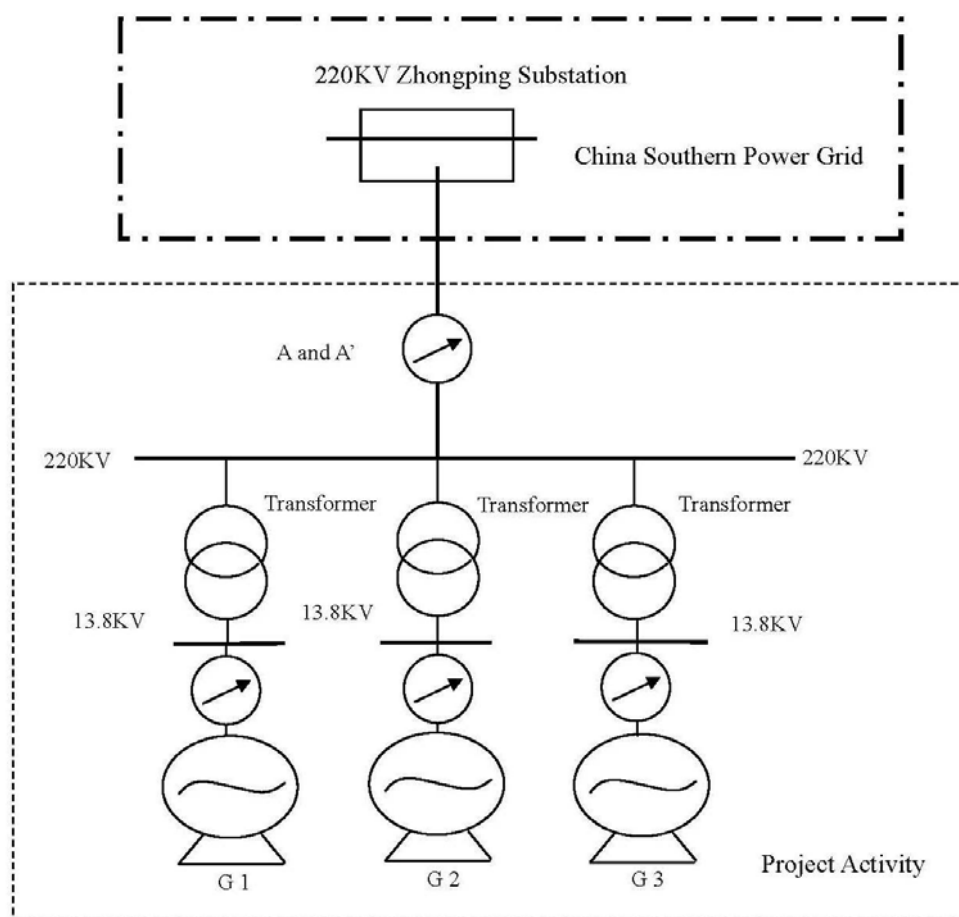


Fig.4 monitoring scheme figure of the Project

## 2. Organizational structure and responsibilities

The Project owner assigns the person in charge of CDM operation with assistance of the technological departments and financial department. The structure was shown as the following Fig.5.

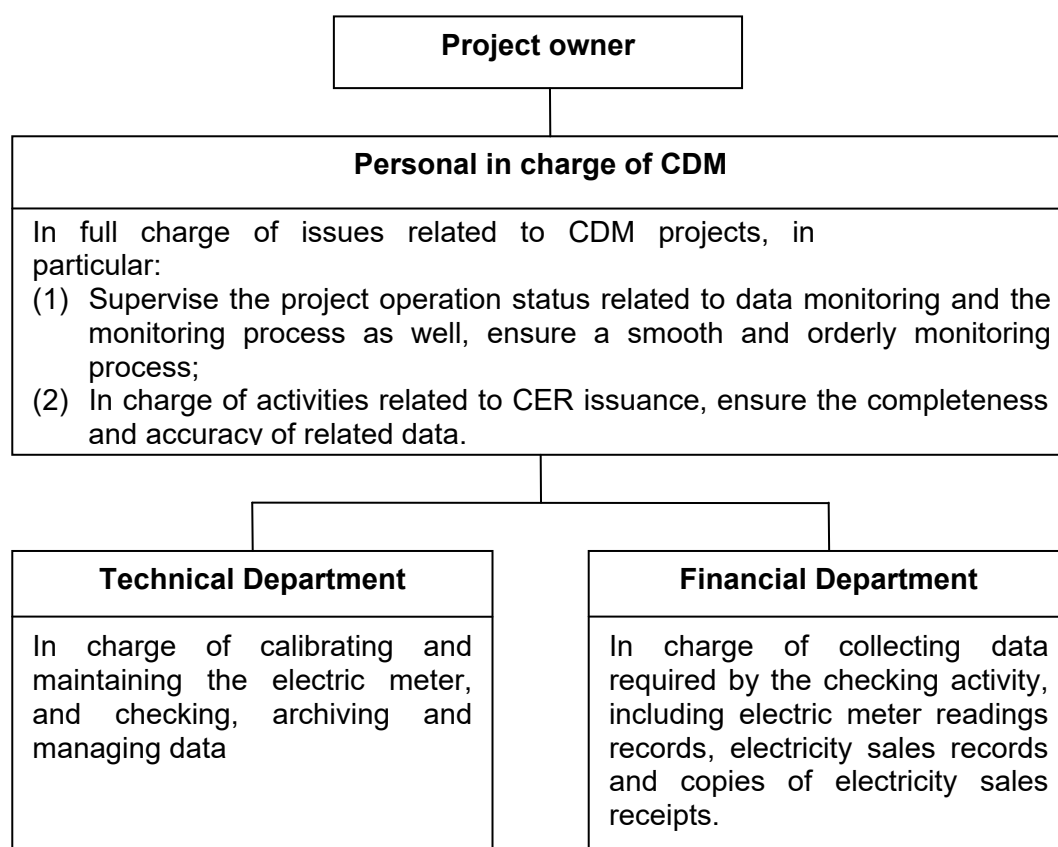


Fig.5. Management Structure of Monitoring Plan

### 3. Emergency procedures

If main meter A is in trouble or damaged, which will result in erroneous measurements, the meter A' will be used to measure the data of the electricity.

In order to maintain 0.2S precision for the Meter A and A', the calibration should be implemented every year according to *Verification Regulation of Electrical Energy Meters with Electronics* (JJG596-1999) or any updated national standard available. The calibration of the meters will be implemented by a relevant qualified institution.

The Project is operated and implemented smoothly during this monitoring period. Neither emergencies happened to the monitoring system, nor events or situations occurred during the monitoring period.

## SECTION D. Data and parameters

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

<b>Data/parameter:</b>	<b>EF<sub>grid,CM,y</sub></b>
Unit	tCO <sub>2</sub> /MWh
Description	Baseline emission factor
Source of data	Registered PDD
Value(s) applied)	0.7134
Choice of data or measurement methods and procedures	Tool to calculate the emission factor for an electricity system (version 02.2.1)
Purpose of data	Baseline emission calculation
Additional comments	fixed and ex-anted for the first crediting period according to the applied methodology



## D.2. Data and parameters monitored

Data/parameter:	EG <sub>feed-in,y</sub>															
Unit	MWh															
Description	Feed-in electricity supplied by the Project to the grid in year y															
Measured/calculated/default	Measured															
Source of data	The main meters (Meter A and A') installed at 220KV transmission line at plant side															
Value(s) of monitored parameter	1,066,842.78															
Monitoring equipment	<p>The type of the meters is electricity meter. Information of Monitoring equipment as follow tables:</p> <table><tr><th>Meter</th><th>Serial No.</th><th>Accuracy</th><th>Calibration frequency</th></tr><tr><td>A</td><td>213138106</td><td>0.2S</td><td>annually</td></tr><tr><td>A'</td><td>209163761</td><td>0.2S</td><td>annually</td></tr></table> <p>Calibration was carried by Yunnan electric power technology co.ltd and the calibration records were supplied to the developer by the power grid.</p>				Meter	Serial No.	Accuracy	Calibration frequency	A	213138106	0.2S	annually	A'	209163761	0.2S	annually
Meter	Serial No.	Accuracy	Calibration frequency													
A	213138106	0.2S	annually													
A'	209163761	0.2S	annually													
Measuring/reading/recording frequency:	Continuously monitored through metering equipment and monthly records by the project owner.															
Calculation method (if applicable):	-															
QA/QC procedures:	Sales receipts/records for sold electricity to the grid are used to ensure the consistency. In order to maintain 0.2S precision for the Meter A and A', the calibration should be implemented every year.															
Purpose of data:	Baseline Emission calculation															
Additional comments:	-															

<b>Data/parameter:</b>	<b>EG<sub>imported,y</sub></b>
Unit	MWh
Description	Electricity imported from the grid in year y.
Measured/calculated/default	Measured
Source of data	The main meters (Meter A and A') installed at 220KV transmission line at plant side
Value(s) of monitored parameter	205.04

Monitoring equipment	<p>The type of the meters is electricity meter. Information of Monitoring equipment as follow tables:</p> <table><tr><th>Meter</th><th>Serial No.</th><th>Accuracy</th><th>Calibration frequency</th></tr><tr><td>A</td><td>213138106</td><td>0.2S</td><td>annually</td></tr><tr><td>A'</td><td>209163761</td><td>0.2S</td><td>annually</td></tr></table> <p>Calibration was carried by Yunnan electric power technology co.ltd and the calibration records were supplied to the developer by the power grid.</p>	Meter	Serial No.	Accuracy	Calibration frequency	A	213138106	0.2S	annually	A'	209163761	0.2S	annually
Meter	Serial No.	Accuracy	Calibration frequency										
A	213138106	0.2S	annually										
A'	209163761	0.2S	annually										
Measuring/reading/recording frequency:	Continuously monitored through metering equipment and monthly records by the project owner.												
Calculation method (if applicable):	-												
QA/QC procedures:	Sales receipts/records for sold electricity to the grid are used to ensure the consistency. In order to maintain 0.2S precision for the Meter A and A', the calibration should be implemented every year.												
Purpose of data:	Baseline Emission calculation												
Additional comments:	-												

Data/parameter:	EG <sub>facility,y</sub>															
Unit	MWh															
Description	Quantity of net electricity generation supplied by the Project to the grid in year y															
Measured/calculated/default	Measured and calculated															
Source of data	Calculated as difference between EG <sub>feed-in,y</sub> and EG <sub>imported,y</sub> .															
Value(s) of monitored parameter	1,066,637.74															
Monitoring equipment	<p>The type of the meters is electricity meter. Information of Monitoring equipment as follow tables:</p> <table><tr><th>Meter</th><th>Serial No.</th><th>Accuracy</th><th>Calibration frequency</th></tr><tr><td>A</td><td>213138106</td><td>0.2S</td><td>annually</td></tr><tr><td>A'</td><td>209163761</td><td>0.2S</td><td>annually</td></tr></table> <p>Calibration was carried by Yunnan electric power technology co.ltd and the calibration records were supplied to the developer by the power grid.</p>				Meter	Serial No.	Accuracy	Calibration frequency	A	213138106	0.2S	annually	A'	209163761	0.2S	annually
Meter	Serial No.	Accuracy	Calibration frequency													
A	213138106	0.2S	annually													
A'	209163761	0.2S	annually													
Measuring/reading/recording frequency:	Continuously monitored through metering equipment and monthly recording by Grid Company and the project owner.															
Calculation method (if applicable):	-															
QA/QC procedures:	Sales receipts/records for sold electricity to the grid are used to ensure the consistency. In order to maintain 0.2S precision for the Meter A and A', the calibration should be implemented every year.															
Purpose of data:	Baseline Emission calculation															
Additional comments:	-															

<b>Data/parameter:</b>	<b>A<sub>PJ</sub></b>
Unit	m <sup>2</sup>
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	3,570,000
Monitoring equipment	Monitored at the end of each year by topographical surveys or map by independent and qualified party.
Measuring/reading/recording frequency:	Yearly
Calculation method (if applicable):	-
QA/QC procedures:	-
Purpose of data:	Project Emission calculation
Additional comments:	-

<b>Data/parameter:</b>	<b>Cap<sub>PJ</sub></b>
Unit	MW
Description	Installed capacity of the hydro power plant after the implementation of the Project activity.
Measured/calculated/default	Measured
Source of data	Project site
Value(s) of monitored parameter	240
Monitoring equipment	Determine the installed capacity based on recognized standards
Measuring/reading/recording frequency:	Yearly
Calculation method (if applicable):	-
QA/QC procedures:	-
Purpose of data:	-
Additional comments:	-

### D.3. Implementation of sampling plan

>>

Not 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

>>

Baseline emissions are calculated with combined baseline emission factor and Quantity of net electricity generation supplied by the project plant/unit. Quantity of net electricity generation

supplied by the project plant/unit in year  $y$  ( $EG_{facility}$ ) is calculated as subtracting the electricity import from the feed-in electricity to the grid in year  $y$  ( $EG_{feed-in,y}$ ):

$$EG_{facility} = EG_{feed-in,y} - EG_{imported,y}$$

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

Where:

$BE_y$  = Baseline emissions in year  $y$  (tCO<sub>2</sub>/yr).

$EG_{facility}$  = The quantity of annual net electricity supplied to the grid by the proposed project (MWh).

$EF_{grid,CM,y}$  = Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year  $y$  calculated using the "Tool to calculate the emission factor for an electricity system".

Therefore, baseline emissions should be calculated according to equation

$$BE_y = EG_{facility} \times EF_{grid,CM,y} = (EG_{feed-in,y} - EG_{imported,y}) \times EF_{grid,CM,y} = (1,066,842.78 - 205.04)$$

$$\times 0.7134 = 760,939 \text{ tCO}_2\text{e}$$

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

>>

Power density of the Project is far higher than 10W/m<sup>2</sup>, no project emission according to ACM0002 (version 13.0.0). Hence, the project emission (PE<sub>y</sub>) of the project is 0.

## E.3. Calculation of leakage

>>

As per the methodology and the registered PDD, the leakage emissions are not considered.

**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>	760,939	0	0	0	760,939	760,939

**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)	1,132,757	760,939

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

&gt;&gt;

The total emission reductions for this monitoring period are 760,939 tCO<sub>2</sub>e. As the monitoring period is for 1064 days, according to commissioning date of three generators, give a volume of 1,132,757tCO<sub>2</sub> and so the actual volume would appear to be smaller than the estimates in the registered PDD.

## 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 type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
<b>Organization name</b>	Yunnan Dianneng Luquan Dianlin Development Co., Ltd.
<b>Street/P.O. Box</b>	Beijing Road, Panlong District, Kunming City
<b>Building</b>	F13, Guoji Youlian Building
<b>City</b>	Kunming
<b>State/region</b>	-
<b>Postcode</b>	650224
<b>Country</b>	China
<b>Telephone</b>	+86-871-5660088
<b>Fax</b>	+86-871-5660088
<b>E-mail</b>	lqdl@vip.sina.com
<b>Website</b>	
<b>Contact person</b>	Zhang Huangui
<b>Title</b>	-
<b>Salutation</b>	Mr.
<b>Last name</b>	Zhang
<b>Middle name</b>	-
<b>First name</b>	Huangui
<b>Department</b>	-
<b>Mobile</b>	+86-13888486102
<b>Direct fax</b>	+86-871-5660088
<b>Direct tel.</b>	+86-871-5660088
<b>Personal e-mail</b>	lqdl@vip.sina.com

<b>Project participant and/or responsible person/ entity</b>	<input type="checkbox"/> Project participant <input checked="" type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
<b>Organization name</b>	China Carbon Futures (Beijing) Asset Management Co., Ltd.
<b>Street/P.O. Box</b>	Henderson Center, No.18 Jianguomennei Avenue
<b>Building</b>	Room1501, office Tower one
<b>City</b>	Beijing
<b>State/region</b>	-
<b>Postcode</b>	100005
<b>Country</b>	China
<b>Telephone</b>	+86-10-65188130
<b>Fax</b>	+86-10-65188130
<b>E-mail</b>	qian.ma@ccarbon.cn
<b>Website</b>	-
<b>Contact person</b>	Ma Qian
<b>Title</b>	-
<b>Salutation</b>	Mr.
<b>Last name</b>	Ma
<b>Middle name</b>	-
<b>First name</b>	Qian
<b>Department</b>	-
<b>Mobile</b>	-
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<b>Direct tel.</b>	+86-10-65188130
<b>Personal e-mail</b>	qian.ma@ccarbon.cn

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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		