



Monitoring report form for CDM project activity
(Version 08.0)

Complete this form in accordance with the instructions attached at the end of this form.

MONITORING REPORT

Title of the project activity	Hunan Xiaotan Hydropower Project		
UNFCCC reference number of the project activity	2842		
Version number of the PDD applicable to this monitoring report	03		
Version number of this monitoring report	01		
Completion date of this monitoring report	10/05/2021		
Monitoring period number	2 nd monitoring period		
Duration of this monitoring period	01/01/2013-17/05/2014		
Monitoring report number for this monitoring period	N/A		
Project participants	Chenxi County Qiongtian Hydropower Co., Ltd.		
Host Party	P.R.China		
Applied methodologies and standardized baselines	Methodologies Used: ACM0002-Consolidated methodology for grid-connected electricity generation from renewable sources(version 7)		
Sectoral scopes	Sectoral scopes:1: Energy industries (renewable - / non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	0	76,789	0
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	105,612		

SECTION A. Description of project activity

A.1. General description of project activity

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Hunan Xiaotan Hydropower Project (hereinafter referred to as “the project”) is a new hydropower plant, locates on Chenshui Branch of Yuanjiang River in Xiaotan Town, Chenxi County, Huaihua City, Hunan Province. The total installed capacity of the project is 20 MW. The purpose of the project is to generate electricity by using water resources to alleviate electricity shortage in Central China. The project will contribute to the reduction of GHG emission by displacing part of the electricity from the fossil fuel fired power plants of the CCPG (Central China Power Grid), which is dominant with fossil fuel fired power plants.

Relevant dates for the project activity is as below:

Event	Date
Project starting date	07/08/2006
Registration date	23/06/2010
Operation of the 1 st generator	04/11/2011
Operation of the 2 nd generator	30/11/2010

Total emission reductions achieved in this monitoring period are 76,789 tCO₂e.

A.2. Location of project activity

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The project locates in Xiaotan Town, Chenxi County, Huaihua City, 8 km away from the county. The project activity is a riverbed-hydroelectric station, and the power house is very close to the dam. Therefore, the dam and the power house has the same GPS coordinates, namely 110°08'39"E and 27°56' 19"N.

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
The Peoples' Republic of China (Host)	Chenxi County Qiongtian Hydropower Co., Ltd.	No

A.4. References to applied methodologies and standardized baselines

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Title of the approved baseline and monitoring methodology: ACM0002-Consolidated methodology for grid-connected electricity generation from renewable sources (version 7)

Please refer to below link for the methodology:

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

Title of the methodology to calculate the emission factor: Tool to calculate the emission factor for an electricity system (version 01.1)

Please refer to below link for the methodology:

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

A.5. Crediting period type and duration

>> The renewable crediting period is chosen for the project. The start date of the first crediting period is 30/06/2010. The first crediting period of the project activity is from 30/06/2010 to 29/06/2017.

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

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The implementation and operation of project is in strict accordance with the description in the registered PDD. The implementation of the project is as follows:

Event	Time
Project starting date	07/08/2006
Registration date	23/06/2010
Crediting period	30/06/2010-29/06/2017 (renewable)
Operation of the 1 st generator	04/11/2011
Operation of the 2 nd generator	30/11/2010
2 nd monitoring period	01/01/2013-17/05/2014

There was no special events happened during this monitoring period, which may impact the applicability of the methodology. The project was under normal operation during this monitoring period.

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

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The project operation is in accordance with the monitoring plan (MP), and there was no any deviation to the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents.

B.2.2. Corrections

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There was no corrections to the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents.

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

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Starting date of the first crediting period was changed from 23/06/2010 to 30/06/2010. This change has been approved by EB.

B.2.4. Inclusion of monitoring plan

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Not applicable.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

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There are no permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents.

B.2.6. Changes to project design

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There are no changes to the project design.

B.2.7. Changes specific to afforestation or reforestation project activity

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Not applicable.

SECTION C. Description of monitoring system

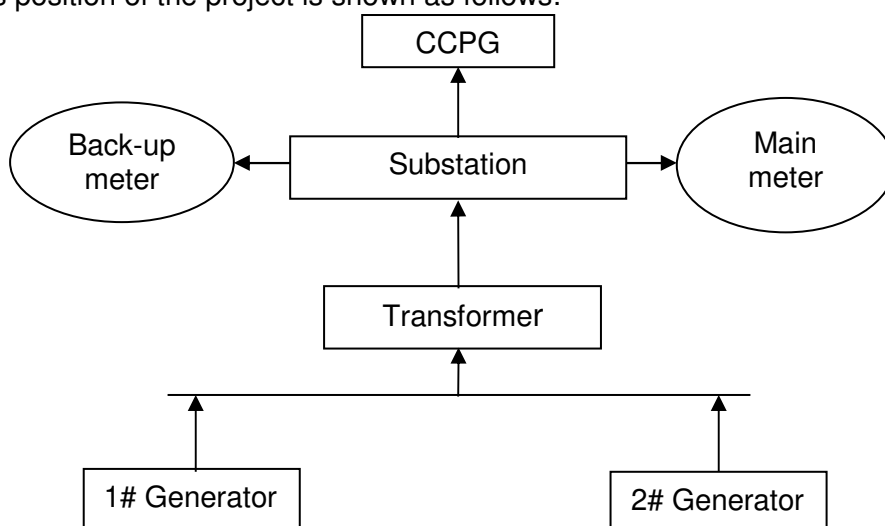
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1. Location of meters

The main meter and back-up meter installed at the connection point of the grid is used to monitor the electricity exported to the CCPG and the electricity imported from the CCPG. All data used for CERs calculation are obtained from main meter during this monitoring period.

The meters have been calibrated once per year in accordance with the industry standard and the calibration records show the operation of meters is in normal situation.

The meters position of the project is shown as follows:



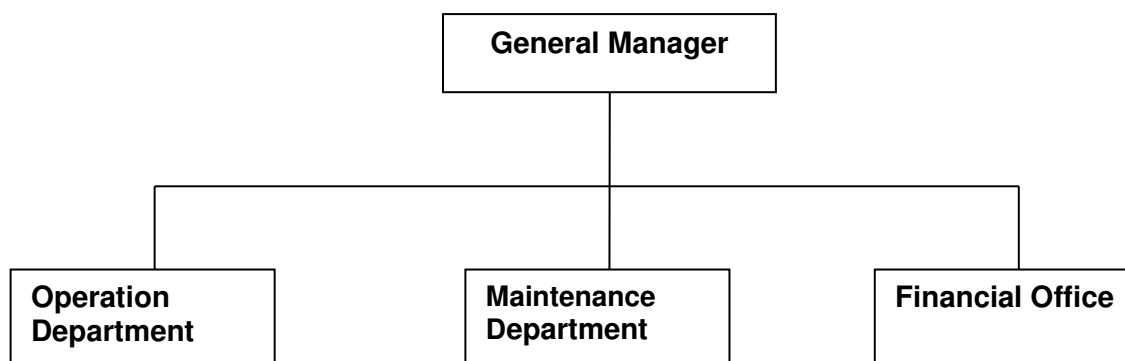
The calibration information of meters is as follows:

Name of the meter	Serial No.	Accuracy	Calibration date	Valid until	Calibration entity
Main meter	90609644	0.5S	31/05/2012	30/05/2013	Measurement institute of Chenxi power grid company
			29/05/2013	28/05/2014	
Back-up meter	90600402	0.5S	31/05/2012	30/05/2013	
			29/05/2013	28/05/2014	

2. Monitoring management structure

In order to obtain reliable monitoring data, the project owner will establish a monitoring management structure prior to the start of the crediting period. Clear responsibilities will be assigned to all staffs involved in the CDM project. A General Manager will be appointed who has the overall responsibilities for the monitoring of the project, other staffs will be responsible for the data recording, data collecting, data archiving and emission reductions calculation. The detailed

structure is as follows:



The duty of each position summarized as follows:

General Manager is take charge of the implementation and management of the monitoring plan overall; check and supervise the activities such as recording, collecting and archiving of the monitoring data; be responsible for communicating with DOE and Hunan CDM Project Service Centre.

Operation Department is take charge of the operation of turbines and generators, record and keep the electricity monitoring data.

Maintenance Department is responsible for maintenance of the facilities of the hydropower plant.

Financial Office is responsible for archiving of monitoring data.

3. Data collection procedure

The readings of the main meter are used for calculating the emission reductions when the main meter is in normal operation state. The monitoring processes are as follows:

- (1) The designated persons from the grid company and the project company record the readings of the meter for the electricity delivered to CCPG and consumed by the project activity from CCPG;
- (2) The power grid company provides the project owner with a settling accounts sheet about the net electricity supplied to CCPG monthly;
- (3) The project owner provides the power grid company with a sale receipt after the power grid company has confirmed the settling accounts sheet, and preserves the copy of the sale receipt.

4. Emergency measures/procedures

When the main meter or back-up meter have a breakdown, the electricity generation difference will be treated as follows:

- a. When main meter has a breakdown, the readings of back-up meter will be adopted;
- b. If both of the main meter and back-up meter have breakdowns, the project owner should notice the power grid company immediately and solve the problem with a conservative calculation method.

After handling of the emergency, the project owner must prepare a report regarding the emergency to explain to DOE that the handling method is reasonable.

SECTION D. Data and parameters**D.1. Data and parameters fixed ex ante¹**

Data/Parameter	EF _y
Unit	tCO ₂ e/MWh
Description	Emission factor of CCPG
Source of data	Registered PDD
Value(s) applied	0.9735
Choice of data or measurement methods and procedures	The data is used for baseline emission calculations. The figure is calculated ex-ante and is fixed during the crediting period.
Purpose of data/parameter	EF _{OM} is 1.2783 tCO ₂ e/MWh, and EF _{BM} is 0.6687 tCO ₂ e/MWh.
Additional comments	EF _y

D.2. Data and parameters monitored

Data/Parameter	EG _y
Unit	MWh
Description	Net electricity supplied to CCPG in year y.
Measured/calculated/default	Measured
Source of data	Main meter
Value(s) of monitored parameter	78879.90 MWh

¹ As other parameters for ex ante in the registered PDD are not being used in the calculation of ER, thus are not list in the MR table.

Monitoring equipment	<p>The data was measured by the Main Meter.</p> <p>Main meter:</p> <p>Type: DTSD62-2a</p> <p>Accuracy class: 0.5S</p> <p>S/N number: 90609644</p> <p>Calibration frequency: annually</p> <p>Calibration information:</p> <table border="1"> <tr> <th>Calibration date</th> <th>Valid until</th> </tr> <tr> <td>31/05/2012</td> <td>30/05/2013</td> </tr> <tr> <td>29/05/2013</td> <td>28/05/2014</td> </tr> <tr> <td colspan="2">Calibration entity: Measurement institute of Chenxi power grid company</td> </tr> </table>	Calibration date	Valid until	31/05/2012	30/05/2013	29/05/2013	28/05/2014	Calibration entity: Measurement institute of Chenxi power grid company	
	Calibration date	Valid until							
31/05/2012	30/05/2013								
29/05/2013	28/05/2014								
Calibration entity: Measurement institute of Chenxi power grid company									
<p>Back-up meter:</p> <p>Type: DTSD62-2a</p> <p>Accuracy class: 0.5S</p> <p>S/N number: 90600402</p> <p>Calibration frequency: annually</p> <p>Calibration information:</p> <table border="1"> <tr> <th>Calibration date</th> <th>Valid until</th> </tr> <tr> <td>31/05/2012</td> <td>30/05/2013</td> </tr> <tr> <td>29/05/2013</td> <td>28/05/2014</td> </tr> <tr> <td colspan="2">Calibration entity: Measurement institute of Chenxi power grid company</td> </tr> </table>	Calibration date	Valid until	31/05/2012	30/05/2013	29/05/2013	28/05/2014	Calibration entity: Measurement institute of Chenxi power grid company		
Calibration date	Valid until								
31/05/2012	30/05/2013								
29/05/2013	28/05/2014								
Calibration entity: Measurement institute of Chenxi power grid company									
Measuring/reading/recording frequency	Continuous measurement by meter installed at the connection point to the grid and monthly recording.								
Calculation method (if applicable)	The meter will be calibrated once a year.								
QA/QC procedures	The main meter will be calibrated once a year and net electricity supplied by the project activity to CCPG would be double checked by receipt of sales.								
Purpose of data/parameter	The data is used for the calculation of baseline emission.								
Additional comments	/								

Data/Parameter	Cap_{PJ}
Unit	W
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	20,000,000
Monitoring equipment	/
Measuring/reading/recording frequency	Yearly monitored based on recognized standards.

Calculation method (if applicable)	/
QA/QC procedures	/
Purpose of data/parameter	The data are used for the calculation of power density.
Additional comments	/

Data/Parameter	A_{PJ}
Unit	m 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	650,000
Monitoring equipment	/
Measuring/reading/recording frequency	Yearly monitored from topographical surveys, maps, satellite pictures, etc
Calculation method (if applicable)	/
QA/QC procedures	/
Purpose of data/parameter	The data are used for the calculation of power density.
Additional comments	/

D.3. Implementation of sampling plan

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Not applicable.

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

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According to ACM0002, the baseline emissions during this monitoring period is calculated as follows:

$$BE_y = EG_y * EF_y$$

Where:

EG_y is net electricity supplied by the project activity to the grid in year y, in MWh;

EF_y is baseline emission factor in year y, in tCO₂e/MWh. According to the registered PDD, the EF_y is 0.9735tCO₂e/MWh, and is fixed during the crediting period.

The monitoring results based on main meter are as follows:

Period	Electricity export (MWh)	Electricity import (MWh)	Net electricity generation (MWh)
	A	B	C = A - B
14/12/2012-31/12/2012*	2303.400	0.000	2303.400
14/12/2012-13/01/2013	3841.860	0.000	3841.860
14/01/2013-13/02/2013	1856.580	0.000	1856.580

14/02/2013-13/03/2013	4578.420	0.000	4578.420
14/03/2013-13/04/2013	6575.580	0.000	6575.580
14/04/2013-13/05/2013	7178.160	0.000	7178.160
14/05/2013-13/06/2013	9032.760	0.000	9032.760
14/06/2013-13/07/2013	5466.120	0.000	5466.120
14/07/2013-13/08/2013	1227.600	0.000	1227.600
14/08/2013-13/09/2013	4664.880	0.000	4664.880
14/09/2013-13/10/2013	6254.820	0.000	6254.820
14/10/2013-13/11/2013	3967.260	0.000	3967.260
14/11/2013-13/12/2013	4588.320	0.000	4588.320
14/12/2013-13/01/2014	2362.800	6.600	2356.200
14/01/2014-13/02/2014	1206.480	8.580	1197.900
14/02/2014-13/03/2014	3117.840	0.000	3117.840
14/03/2014-13/04/2014	6050.220	0.000	6050.220
14/04/2014-13/05/2014	8177.400	0.000	8177.400
14/05/2014-17/05/2014	1051.380	0.000	1051.380
sum	78895.08	15.18	78879.90

*** As the monitoring period starts from 01/01/2013, that means the electricity generated before 2013 should be deducted, thus the export and import electricity during 26/12/2012 to 31/12/2012 is deducted among the calculation.**

Note: The data sources are from the main meter readings and can be cross checked by electricity sales receipts. There is no malfunction happened to main meter during this monitoring period.

According to above calculation methods, the net electricity generation used for emission reductions calculation is 78879.90MWh. The baseline emission factor (EF_y) is 0.9735tCO₂/MWh, which is fixed during the first crediting period. Then the baseline emissions (BE_y) are calculated as follows:

$$BE_y = EG_y * EF_y = 78879.90\text{MWh} * 0.9735\text{tCO}_2/\text{MWh} = 76,789 \text{ tCO}_2$$

E.2. Calculation of project emissions or actual net removals

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According to the baseline methodology ACM0002 (Version11), $PE_y=0$, it is not needed to consider project emissions.

Therefore $PE_y = 0$.

E.3. Calculation of leakage emissions

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According to baseline methodology ACM0002, leakage is not to be considered.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)			
				Before 01/01/2013	From 01/01/2013 until 31/12/2020	From 01/01/2021	Total amount
Total	76,789	0	0	0	76,789	0	76,789

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
76,789	105,612* * As the generator operation duration is 502 days from 01/01/2013 to 17/05/2014 thus the total estimated emission reduction can be calculated as: 76,790/365*502=105,612 tCO ₂ e.

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

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It can be found from E.5 that the actual emission reduction achieved during the monitoring period is lower than the registered PDD. It is due to the availability of water resources during the monitoring period.

E.6. Remarks on increase in achieved emission reductions

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The achieved emission reduction is lower than the estimated in the PDD.

E.7. Remarks on scale of small-scale project activity

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Not applicable.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
08.0	6 April 2021	Revision to: <ul style="list-style-type: none"> • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
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 (EB 70, Annex 11).

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		