

MONITORING REPORT OF XUNDIAN JINFENG 12.6MW HYDROPOWER PROJECT

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1 PROJECT DETAILS

1.1 Summary Description of Project

The Xundian Jinfeng 12.6MW Hydropower Project (hereafter, “the Project”) is a run of river type hydropower project. The total installed capacity is 12.6MW (2*6.3MW). The purpose of the Project is to utilize the hydro resource to generate electricity which would otherwise have been produced by fossil fuel-fired power plants. The electricity generated will supply the South China Grid via the Yunnan Power Grid (hereafter referred to as CSPG). The Project has registered as a CDM project on 29th April, 2010 and is expected to reduce emissions of greenhouse gases by an estimated 40,760tCO₂e per year during the first crediting period.

1.2 Sectoral Scope and Project Type

The sectoral scope and activity type of the project is identified as follow:

Sectoral Scope 01: Energy industries (renewable-/non-renewable sources)

Type I: Renewable energy projects

The project is not a grouped project.

1.3 Project Proponent

Table-1 The information of the project proponents

Roles/Responsibilities	Project Owner
Organization	Yunnan Xudong Phosphate Chemical Group Jinfeng Power Generation Co., Ltd.
Address	Julongge Villa, Luoman Hotspring Hotel, Dianchi Street, Kunming City, Yunnan Province
Post Code	650238
Country	P.R.China
Telephone	+86-871-4613319
Fax	+86-871-4589236

1.4 Other Entities Involved in the Project

There is no other project participant(s).

1.5 Project Start Date

The project started on 29/05/2008.

1.6 Project Crediting Period

The project crediting period is from 29/05/2008 to 28/04/2010. The total crediting period is 700 days.

1.7 Project Location

The Project is located in Xundian County, Yunnan Province, People’s Republic of China. The construction site is in Fengyi Village and Jinyuan Village. The geographical coordinate of the powerhouse are east longitude of 103°06’35”and north latitude of 25°52’35”.

1.8 Title and Reference of Methodology

The baseline and monitoring methodology used for the Project is “AMS-I.D. - Grid Connected Renewable Electricity Generation” (Version 13).

For more information regarding the methodology, please refer to <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The total installed capacity of the Project is 12.6MW, which consists of two turbine generator sets. The types of turbines and generators are CJA475-W-116/2×11 and SFW6300-8/2150 respectively. Key technical specifications are listed in Table 2-1 and Table 2-2 below.

Table 2-1 Key Technical specifications of Water turbines

Parameters Name	Unit	Value
Type	/	CJA475-W-116/2×11
Nominal output	MW	6.528
efficiency	%	89.6
Rated flow quantity	M ³ /s	1.45
Rotational speed	r/min	750

Table 2-2 Key Technical specifications of generators

Parameters Name	Unit	Value
Type	/	SFW6300-8/2150
Nominal output	MW	6.3
Nominal frequency	Hz	50
Nominal voltage	kV	6.3
Rotational speed	r/min	750

Two generators of the Project started trial operation on 29/05/2008. The Project owner has implemented and operated the Project as per the registered PDD.

During this monitoring period, no special event occurred which may impact the applicability of the methodology.

In this monitoring period (from 29/05/2008 to 28/04/2010), the total emission reductions achieved is 62,389 tCO₂e.

2.2 Deviations from the Monitoring Plan

No deviation is requested for this monitoring period.

2.3 Grouped Project

The project is not a grouped project.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	EF
Data unit:	tCO ₂ /MWh
Description:	Emission Factor
Source of data:	The registered PDD
Value applied:	0.8433
Purpose of the data:	The data is used for baseline emission calculations
Any comment:	N/A

3.2 Data and Parameters Monitored

Data Unit / Parameter:	EG _y
Data unit:	MWh
Description:	Electricity delivered to grid in year y
Source of data:	Measured by meters
Description of measurement methods and procedures to be applied:	Readings from main meter M1 and backup meter M2
Frequency of monitoring/recording:	Continuous on-site measurements and monthly recording
Value monitored:	74,063.330
Monitoring equipment:	Please find the detail information of Main Meter and Backup Meter in Table 3-2 and Table 3-3.

QA/QC procedures to be applied:	According to national standard, meters are calibrated periodically. Data measured by meters is cross checked by electricity sales receipt.
Calculation method:	N/A
Any comment:	N/A

Data Unit / Parameter:	EG _g
Data unit:	MWh
Description:	Electricity supplied by grid in year y
Source of data:	Measured by meters
Description of measurement methods and procedures to be applied:	Readings from main meter M1 and backup meter M2
Frequency of monitoring/recording:	Continuous on-site measurements and monthly recording
Value monitored:	81.015
Monitoring equipment:	Please find the detail information of Main Meter and Backup Meter in Table 3-2 and Table 3-3.
QA/QC procedures to be applied:	According to national standard, meters is calibrated periodically. Data measured by meters is cross checked by electricity sales receipt.
Calculation method:	N/A
Any comment:	N/A

3.3 Description of the Monitoring Plan

Baseline emission factor the project is determined ex ante. Therefore the electricity delivered by the project to the South China Grid is defined as the key data to be monitored. The monitoring plan is drafted to focus on monitoring the electricity delivered by the project to the South China Grid.

1. Monitoring of the Electricity Supplied to the South China Grid by the Project

The electricity supply is metered by the project entity by national standard electricity meters. An agreement is signed between the project owner and the grid company that defines the metering arrangements and the required quality control procedures to ensure accuracy. According to the Technical Administrative Code of Electric Energy Metering (DL/T448-2000), the electric energy metering equipment is properly configured and the metering equipment is checked by both the project owner and the grid company before the project is in operation.

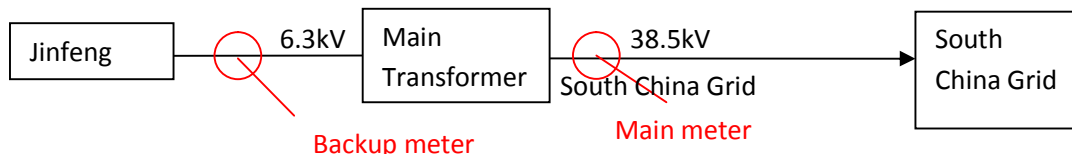


Figure 3-1 Connection Diagram

Two meters are required, of which, the first meter (backup meter) at the exit of the project station is employed to measure output electricity, and the second meter (main meter) measures the power supplied to the grid at the input of the substation of the Grid Company (interconnection facility connecting the facility to the grid). Both meters (which of them belong to the project owner) have the capability to be read remotely through a communication line. Grid-connected electricity generated by the Project is monitored through main meter. When the main meter has any troubles, the project owner will employ the data monitored by the backup meter. And the data will be cross-checked against relevant electricity sale receipts or records from the grid.

The Project owner will ensure that the meter readings be readily available for validation/verification body's verification.

2. Monitoring of the Electricity Supplied by the South China Grid

The electricity supplied by the South China Grid is metered by main meter and backup meter mentioned above as EG_g , both of them are bi-directional meters.

3. Calibration of Meters & Metering

Calibration of Meters & Metering is implemented according to relevant standards and rules of the South China Grid.

An agreement was signed between the proposed Project owner and the local grid company that defines the metering arrangements and the required quality control procedures to ensure accuracy.

- The metering equipment is properly calibrated and checked according to the national standard for accuracy.
- The metering equipment has sufficient accuracy so that error resulting from such equipment is not exceed +0.5% of full-scale rating.
- Both Meters are jointly inspected and sealed on behalf of the parties concerned and aren't interfered with by either party except in the presence of the other party or its accredited representatives.
- All the meters installed are tested by the local grid company within 10 days after:
 - (a) The detection of a difference larger than the allowable error in the reading of both meters
 - (b) The repair of all or part of the meter caused by the failure of one or more parts to operate in accordance with the specifications
 - (c) If any errors are detected, the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.
- Will any previous months reading of the Main Meter be inaccurate by more than the

allowable error, or otherwise functioned improperly, the grid-connected electricity generated by the proposed Project will be determined by:

- (a) First, by Reading Backup Meter, unless a test by either party reveals it is inaccurate
 - (b) If the backup system is not within acceptable limits of accuracy or is performing improperly, the proposed Project owner and the local grid company shall jointly prepare an estimate of the correct reading by reading the meters for each generation, and deducting the internal power usage and transmission loss which are estimated by the value of last month, and
 - (c) If the proposed Project owner and the local grid company fail to agree the estimate of the correct reading, then the matter will be referred for arbitration according to agreed procedures.
- The electricity recorded by the Main Meters alone suffices for the purpose of billing and emission reduction verification as long as the error in the Main Meter is within the permissible limits.

Calibration is carried out by the local grid company with the records being provided to the proposed Project owner, and these records are maintained by the proposed Project owner and the third party designated.

The metering instruments are calibrated according to the national standard and a report of the calibration is included in the monitoring report. If during the year significant discrepancies between the readings of the instruments of the project entity and the instruments of the grid company exist, both instruments will be recalibrated. This action will be logged and included in the monitoring report. Calibration is carried out by the grid company. The formal records of the calibration are provided to and maintained by the project owner. These records are available to the verifier. The project owner may decide to store additional copies of the calibration records for safe-keeping with a third party.

All the records are documented and maintained by the Project owner for validation/verification body's verification.

The detail information of Main Meter and Backup Meter is listed in Table 3-2 and Table 3-3:

Table 3-2 Detail information of Main Meter

Serial Number	005Z0024	Type	Electricity meter
Accuracy class	0.2S	Calibration Frequency	Annually
Date of The One before Last Calibration	22/01/2009		
Calibration Entity	Xundian Power Supply Co., Ltd		
Date of Last Calibration	25/11/2011	Valid Till	24/11/2012
Calibration Entity	Electric Power Research Institute of Yunnan Electric Power Test&Research Institute (Group) Co., Ltd.		

Accreditation of Calibration	Accredited by China National Accreditation Service for Conformity Assessment
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Table 3-3 Detail information of Backup Meter

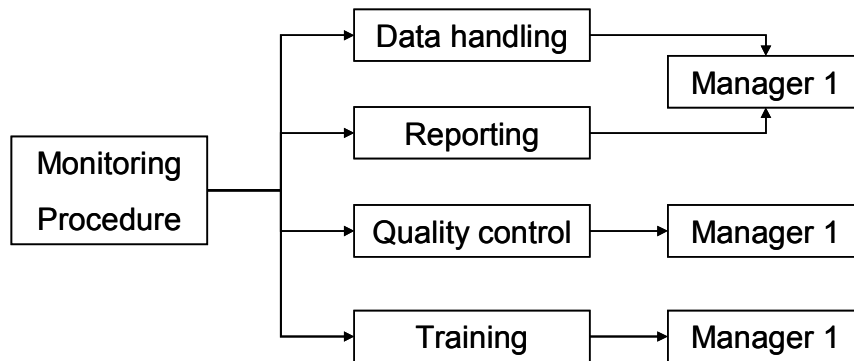
Serial Number	D2005000981	Type	Electricity meter
Accuracy class	0.5	Calibration Frequency	Annually
Date of The One before Last Calibration	22/01/2009		
Calibration Entity	Xundian Power Supply Co., Ltd		
Date of Last Calibration	25/11/2011	Valid Till	24/11/2012
Calibration Entity	Electric Power Research Institute of Yunnan Electric Power Test&Research Institute (Group) Co., Ltd		
Accreditation of Calibration	Accredited by China National Accreditation Service for Conformity Assessment		

4. Quality Assurance and Quality Control

The quality assurance and quality control procedures for recording, maintaining and archiving data shall be improved as part of this CDM project activity according to EB rules and real practice in terms of the need for verification of the emission reductions on an annual basis according to this PDD.

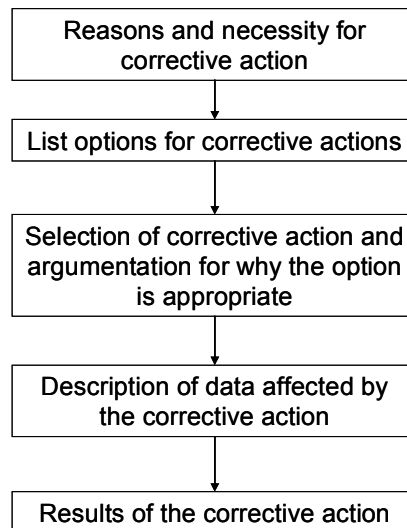
5. Data Management System

Specific staff is appointed by the Project owner to take the overall responsibility for monitoring of greenhouse gas emission reductions and keeping all the data and information for emission reductions verification. And he (or she) prepares operational reports of the project activity, recording the daily operation of the hydropower station, including operating periods, power generation; power delivered to the grid, equipment defects, etc. Finally, the monitoring reports are reviewed by the General Manager.



6. Corrective actions

Specific staff logs all corrective actions and report in the monitoring report. In case corrective actions are considered necessary, these actions are implemented according to the procedure outlined below.



7. Training

A CDM group is established within the Project Owner to carry out the monitoring work. Its staffs are trained by the experts of Beijing Ruichi Electric Power Information Technology Co.,Ltd.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

In accordance with the AMS-I.D, Baseline emissions are calculated according to the following formula:

$$BE_y = (EG_y - EG_g) \times EF_y$$

Where:

BE_y	baseline emissions
EG_y	Electricity delivered to grid
EG_g	Electricity supplied by grid
EF_y	baseline emission factor

The emission factor EF_y is equal to 0.8433 tCO₂/MWh. EF_y has been calculated in the Project Design Document and is fixed during the first crediting period.

The monitored data based on meter readings and sales receipts for the Project are as following:

Period	Meter Records (EG _y)	Sales Receipts* (EG _y)	Deducted Value (EG _y)	Conservative Value EG _y	Meter Records (EG _g)	Sales Receipts* (EG _g)	Added Value (EG _g)	Conservative Value EG _g	EG _y - EG _g
29/05/2008-25/06/2008	3,021.984	3,021.984	15.110	3,006.874	7.756	7.756	0.039	7.795	2,999.079
25/06/2008-25/07/2008	7,786.660	7,786.660	38.933	7,747.727	0.000	0.000	0.000	0.000	7,747.727
25/07/2008-25/08/2008	7,645.372	7,645.372	38.227	7,607.145	0.448	0.448	0.002	0.450	7,606.695
25/08/2008-25/09/2008	5,446.224	5,446.224	27.231	5,418.993	0.140	0.140	0.001	0.141	5,418.852
25/09/2008-25/10/2008	4,020.156	4,020.156	20.101	4,000.055	0.336	0.336	0.002	0.338	3,999.718
25/10/2008-25/11/2008	7,734.636	7,734.636	38.673	7,695.963	0.308	0.308	0.002	0.310	7,695.653
25/11/2008-25/12/2008	4,270.140	4,270.140	21.351	4,248.789	0.448	0.448	0.002	0.450	4,248.339
25/12/2008-20/01/2009	2,491.160	2,491.160	12.456	2,478.704	1.204	1.204	0.006	1.210	2,477.494
20/01/2009-20/02/2009	2,261.728	2,261.728	11.309	2,250.419	4.844	4.844	0.024	4.868	2,245.551
20/02/2009-20/03/2009	1,401.988	1,401.988	7.010	1,394.978	4.060	4.060	0.020	4.080	1,390.898

20/03/2009-20/04/2009	1,827.448	1,827.448	9.137	1,818.311	5.236	5.236	0.026	5.262	1,813.049
20/04/2009-20/05/2009	1,650.712	1,650.712	8.254	1,642.458	5.180	5.180	0.026	5.206	1,637.253
20/05/2009-20/06/2009	704.508	704.508	3.523	700.985	5.852	5.852	0.029	5.881	695.104
20/06/2009-20/07/2009	3,749.060	3,749.060	18.745	3,730.315	1.652	1.652	0.008	1.660	3,728.654
20/07/2009-20/08/2009	6,695.864	6,695.864	33.479	6,662.385	0.112	0.112	0.001	0.113	6,662.272
20/08/2009-20/09/2009	4,832.632	4,832.632	24.163	4,808.469	0.028	0.028	0.000	0.028	4,808.441
20/09/2009-20/10/2009	2,721.236	2,721.236	13.606	2,707.630	0.308	0.308	0.002	0.310	2,707.320
20/10/2009-20/11/2009	1,713.656	1,713.656	8.568	1,705.088	2.520	2.520	0.013	2.533	1,702.555
20/11/2009-14/12/2009	1,073.100	1,073.100	5.366	1,067.735	0.308	0.308	0.002	0.310	1,067.425
14/12/2009-20/01/2010	1,435.280	1,435.280	7.176	1,428.104	11.788	11.788	0.059	11.847	1,416.257
20/01/2009-20/02/2010	957.376	957.376	4.787	952.589	7.560	7.560	0.038	7.598	944.991
20/02/2009-20/03/2010	918.568	918.568	4.593	913.975	4.676	4.676	0.023	4.699	909.276
20/03/2009-20/04/2010	17.808	17.808	0.089	17.719	8.708	8.708	0.044	8.752	8.967
20/04/2009-28/04/2010	53.200	53.200	0.266	52.934	6.188	6.188	0.031	6.219	46.715
28/04/2010-28/04/2010 (24:00PM)	5.012	5.012	0.025	4.987	0.952	0.952	0.005	0.957	4.030
Total	74,435.508	74,435.508	372.178	74,063.330	80.612	80.612	0.403	81.015	73,982.315

Because the qualification certificate of calibration entity was invalid after 15/06/2009, the former Main Meter and Backup Meter were calibrated on 25/11/2011 and the current Main Meter and Backup Meter were calibrated on 29/11/2011, by a new calibration entity. The calibration of meters are delayed, according to the “Guidelines for assessing compliance with the calibration frequency requirements” (Annex 60, EB52), form 29/05/2008, the conservative value of EG_y is deducted by the meter’s maximum permissible error (0.5%), and the conservative value of EG_g is added by the meter’s maximum permissible error (0.5%).

The meter reading time is 8:00 AM every day, But for the last day 28/04/2010, the meter reading is recorded at 24:00. (Namely 0:00, 29/04/2010). According to the statement from Xundian Power Supply, the electricity imported and exported were both 0 before 8:00AM of the first day. The electricity imported after 8:00AM of the last day was 5.012MWh, and the electricity exported was 0.952MWh.

The formula for calculating baseline emissions is:

$$BE_y = (EG_y - EG_g) * EF_y = (74,063.330 - 81.015) * 0.8433 = 62,389 \text{ tCO}_2\text{e}$$

The baseline emissions BE_y is 62,389 tCO₂e.

4.2 Project Emissions

According to the AMS-I.D. methodology, the emission in the construction period of the Project is neglected. So the GHG emission within the project boundary is zero, i.e. PE_y = 0 tCO₂e.

4.3 Leakage

According to the AMS-I.D. methodology, the energy generating equipment isn't transferred from another activity or transferred to another activity, i.e. L_y = 0 tCO₂e.

4.4 Summary of GHG Emission Reductions and Removals

According to AMS-I.D (version 15), the emission reduction are calculated as follows:

$$ER_y = BE_y - PE_y - L_y$$

Table-4 Emission Reduction Calculation

Total baseline emissions for the monitoring period	62,389 tCO ₂ e
Total project emissions	0 tCO ₂ e
Total leakage	0 tCO ₂ e
Total emission reductions	62,389 tCO ₂ e

Remarks

In 2008(29/05/2008-25/12/2008): 33493 tCO₂e

In 2009(25/12/2008-14/12/2009): 26088 tCO₂e

In 2010(14/12/2009-28/04/2010_(24:00PM)): 2808 tCO₂e

Note: for detailed data, please refer to the VER calculation spreadsheet

Comparison of the actual emission reductions with the estimated value

The estimated annual emission reductions are 40,760 tCO₂e as per registered PDD. The actual emission reductions during this monitoring period are 62,389 tCO₂e. The monitoring period is from 29/05/2008 to 28/04/2010 which includes 700 days, thus the estimated emission reductions during this monitoring period are 78,170 tCO₂e (40,760 tCO₂e/365d*700d). Comparing with the estimated emission reductions, the actual emission reductions are 20.19% lower.

5 ADDITIONAL INFORMATION

N/A