

VCS Monitoring Report

28MW Jinkouba Hydropower Project

(CDM Registration Reference Number: 1633)

Monitoring Period:

01/02/2008-17/02/2009

Version 4

18/05/2010

1. Introduction

This document reports the emission reductions generated by 28MW Jinkouba Hydropower Project in Gansu Province, China whose CDM registration reference number is 1633 during the following monitoring period: 01/02/2008(start date of the VCS crediting period) to 17/02/2009.

2. General description of the project

2.1 Project activity

The 28MW Jinkouba Hydropower Project (hereafter refers to the proposed project), a run-of-river hydropower project, is located on Baishuijiang River in Gansu Province, China. The total installed capacity of the proposed project is 28MW (2×14MW) and the annual net output is 127,900MWh. The electricity generated by the proposed project is supplied to Northwest Region Power Grid (“NWPG”) through Gansu Grid, displacing part of electricity generated by NWPG which is dominated by thermal power plants, and thus greenhouse gas (GHG) emission reductions could be achieved. The estimated annual GHG emission reductions are 108,689 tCO₂e.

2.2 Technical description of the project

Location of the project activity

The proposed project is located on the Baishuijiang River in Wen County, south of Gansu Province. The geographic coordinates of plant powerhouse are east longitude 104°53'18"and north latitude 32°50'52".

Please refer to the project PDD for more detailed information.

Technology employed by the project activity

The proposed project includes a sand washing sluice, a flood discharge sluice, a gravity dam, an open ditch, a tunnel, a forebay, a penstock, a powerhouse, a tail water ditch and a booster station etc. It involves the installation of two sets of 14MW turbines and associated generators. The turbines and generators are made in China. The main parameters of turbines and generators please see table2-1.

Table 2-1 Key parameters of Turbine and generator

Turbines	
Type	ZZ660-LH-300
Quantity	2
Rated Header	22.0m
Rated Flow	70.4m ³ /s
Rated Power	14580kW
Generators	
Type	SF14-28/5100
Quantity	2
Rated Power	14000kW
Rated Voltage	10.5kV
Rated Rotation Speed	214.3r/min

2.3 Operation of the project

Current Status

Construction of the proposed project started in November 2005. The 2[#] turbine with an installed capacity of 14 MW became operational on 1st Feb, 2008, 1[#] turbine on 15th, Feb, 2008. At the time of registration of the PDD the project was fully operational.

3. Monitoring Methodology and Plan

3.1 Monitoring Methodology

The project activity uses the approved consolidated baseline methodology ACM0002 (Version 6): “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” and the approved consolidated monitoring methodology: “Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources”. For more information regarding the baseline methodology and monitoring methodology, please refer to:

http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_BW759ID58ST5YEEV6WUCN5744MN763

3.2 Monitoring Data and Parameters

Data/Parameters	EG _{Ex}
Data Unit	MWh
Description	Annual electricity exported to the NWPG
Source of data to be used	Measured by the ammeter
Description of measurement methods and procedures to be applied	Electricity was measured directly and continuously by computed and precise ammeters. Recording frequency was hourly measurement and monthly recording; Proportion of data monitored was 100% throughout whole year; The data was archived both in electronic and paper.
QA/QC procedures to be applied	The accuracy of meters is 0.2s. Two ammeters were proofread each other both in booster station and switching station; The meters were calibrated periodically in accordance with related measure standard in China. The meter was read frequently jointly by the project proponent and the grid company. Cross check by the invoice of electricity sales.

Data/Parameters	EG _{Im}
Data Unit	MWh
Description	Annual electricity imported from the NWPG
Source of data to be used	Measured by the ammeter
Description of	The similar measurement methods and procedures as

measurement methods and procedures to be applied	electricity exports.
QA/QC procedures to be applied	The accuracy of meters is 0.2s. The meter was read frequently jointly by the project proponent and the grid company. Meters were calibrated and checked annually. Cross check by the invoice of electricity purchase.

Data/Parameters	EG_y
Data Unit	MWh
Description	Net electricity exported to the NWPG by the proposed project in year y .
Source of data to be used	Actual measurement records
Description of measurement methods and procedures to be applied	Calculated as follows: $EG_y = EG_{Ex} - EG_{Im}$
QA/QC procedures to be applied	The accuracy of meters is 0.2s. Directed and inspected by CDM project team leader, calculated and finished by monitoring charge and monitoring person, keep all original recorders for verification. Cross check by the sales receipt.

3.3 Monitoring plan

Monitoring is a key procedure to verify the real and measurable emission reductions from the proposed project. To guarantee the proposed project's real, measurable and long-term GHG emission reductions, the monitoring plan has been established. The monitoring plan is carried out practically in line with the CDM Monitoring Plan.

According to the requirements in metering of Gansu Electric Power Company (GEPC), two-way meters were installed in the substation and the power plant respectively. The electricity delivered to the grid by the proposed project and imported electricity of the project is mainly based on the monitoring data coming from the main meter (M2) installed at

110kV Yulei Transformer Substation which monitored regularly by Gansu Electric Power Company. The backup (auxiliary) meter (M1) was installed at 10.5kV Jinkouba Booster Station to ensure maximum availability of monitoring data and quality controls of the CDM data.

In accordance with the registered PDD, before the proposed project operates formally, calibration of meters was carried out by Gansu Electricity Measurement Center which is designated by GEPC, then lead seals to ensure the accuracy and impartiality of the meters.

The reading of meters is monitored continuously by computer system. The hydropower plant recorders read the backup meter (M1) every hour and record data every month.

- Before August 2008, reading of the invoice main meter (M2) is recorded at the end of each month. The monthly power purchase settlement notice is prepared and invoice is issued based on it.
- From August 2008, there is a new rule for all provincial grid-connected power plants in Gansu Province, with the aim of ensuring invoices made by the end of each month. At 24:00 of the third day from end of each month, the grid company reads the main meter and supplies readings to the project proponent. Upon this, the monthly power purchase settlement notice is prepared. Project proponent checks the reading and then provides sales invoice to the grid company. Furthermore, the records would be kept in electronic

form, and monthly generation data would be printed out for a back up, to deal with the improbable event of a computer hazard.

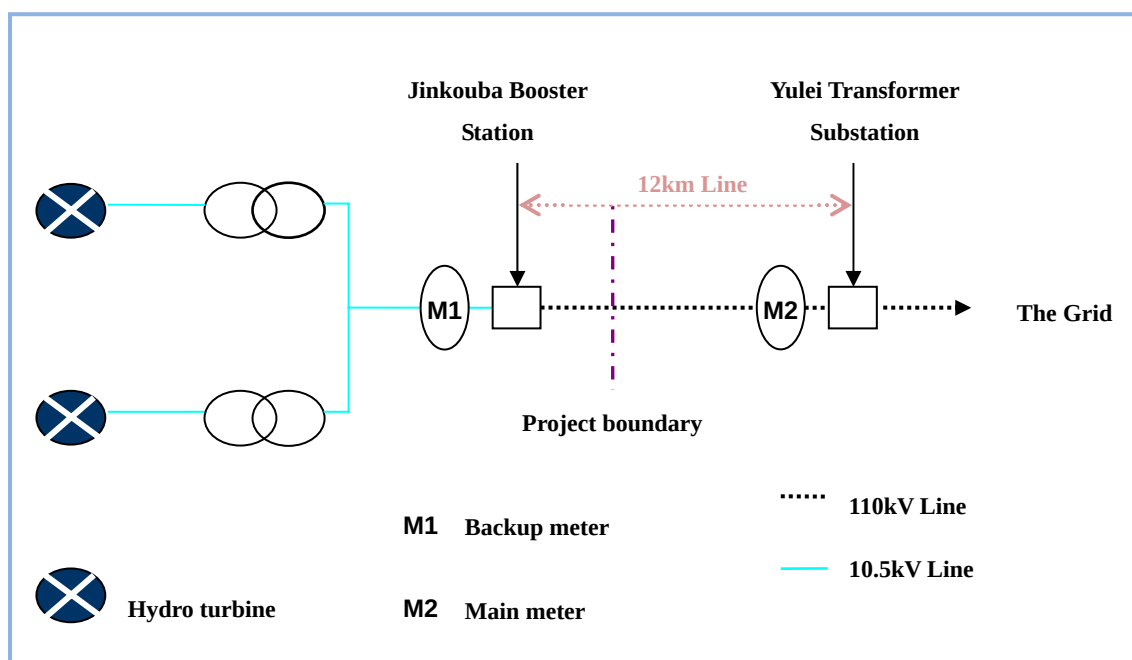


Figure 3-1 Meter diagram of the proposed project

Table 3-1 Calibration of Meters

Meter	Type	Serial number	Accuracy	Calibration date	Carried out by	Calibration
Main meter(M2)	SL7000	36055681	0.2s	2007-11-06	Electricity Measurement Center of Gansu Electric Power Company	Annually
Main meter(M2)	SL7000	36055681	0.2s	2008-09-22	Electricity Measurement Center of Gansu Electric Power Company	Annually
Backup meter(M1)	SL7000	36002888	0.2s	2007-09-16	Electricity Measurement Center of Gansu Electric Power Company	Annually
Backup meter(M1)	SL7000	36002888	0.2s	2008-09-22	Electricity Measurement Center of Gansu	Annually

					Electric Power Company	
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4. Quality Assurance (QA) and Quality Control (QC)

The monitoring plan describes the implementation of the QA and QC requirements and provides the following QA/QC procedures:

- Project proponent keeps all the records (include the electronic files, paper documents, maintenance and calibration data etc.) which ensure the on-going process through the defined crediting period in terms of the need for verification on an annual basis.
- The metering data by the plant can be cross-checked with the Electricity Sales Invoices issued by Electric Power Company.
- The data required for the calculations of reduce emission for verification, should mainly based on the metering data by the substation, and secondary to the data metered by the power plant.

5. Calculation of Emission Reductions

According to the methodology ACM0002: $ER_y = BE_y - PE_y - L_y$

5.1 Project activity emissions

The proposed project is a run-of-river hydropower project. No emissions from the project activity were identified, then $PE_y = 0$.

5.2 Leakages

According to the methodology ACM0002 (Version 6), the project leakage is not considered, and therefore, $L_y = 0$.

5.3 Baseline emissions

Baseline Emissions are calculated by multiplying the Baseline Emission factor by annual net electricity.

$$BE_y = EG_y \times EF_y$$

With:

BE_y —Baseline emissions of China Northwest Power Grid in year y

EG_y —Net electricity supplied by the project to the grid in year y.

EF_y —Emission factor in year y. From the PDD, it is calculated that

$$EF_y = 0.8498 \text{ tCO}_2/\text{MWh}$$

5.4 Emission reductions

Table 5-1 Monitoring data from 01/02/2008 to 17/02/2009

Monitoring period	Electricity exported (MWh)	Electricity imported (MWh)	Net electricity to the grid(EG_y) (MWh)	Emission reductions (ER_y) (tCO ₂ e)
01/02/2008-29/02/2008*	3,599.970	0	3,599.970	3,059.255
01/03/2008-31/03/2008	5,448.300	0	5,448.300	4,629.965
01/04/2008-30/04/2008	9,121.728	0.132	9,121.596	7,751.532
01/05/2008-31/05/2008	7,325.068	0.792	7,324.276	6,224.170
01/06/2008-30/06/2008	9,442.356	0.660	9,441.696	8,023.553
01/07/2008-31/07/2008	15,447.828	0.396	15,447.432	13,127.227
01/08/2008-29/08/2008	13,300.320	0	13,300.320	11,302.612
30/08/2008-28/09/2008	13,860.000	0.132	13,859.868	11,778.115
29/09/2008-29/10/2008	14,444.000	0	14,444.000	12,274.511
30/10/2008-28/11/2008	9,702.000	1.132	9,700.868	8,243.798
29/11/2008-29/12/2008	7,760.892	0.264	7,760.628	6,594.982
30/12/2008-29/01/2009	5,798.232	0	5,798.232	4,927.338
30/01/2009-17/02/2009	3,030.436	0	3,030.436	2,575.265
Total	118,281.130	3.508	118,277.6	100,512

* The 2[#] turbine with an installed capacity of 14 MW became operational on 1st Feb, 2008, 1[#] turbine on 15th, Feb, 2008.

The emission reductions for the project during the proposed crediting

period can be calculated using the following formula:

$$ER_y = BE_y - PE_y - L_y$$

$$= EG_y \times EF_y - PE_y - L_y$$

$$= 118,277.6 \times 0.8498 - 0 - 0$$

$$= 100,512 \text{ tCO}_2\text{e}$$

The result of the calculation is summarized in below table:

Monitoring Period	Emission reduction(tCO ₂ e)
01/02/2008-17/02/2009	100,512