

Siliping Small-Scale Hydro Power Project

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Table of Contents

1	Project Details	3
1.1	Summary Description of the Implementation Status of the Project.....	3
1.2	Sectoral Scope and Project Type	3
1.3	Project Proponent.....	3
1.4	Other Entities Involved in the Project	4
1.5	Project Start Date	4
1.6	Project Crediting Period.....	4
1.7	Project Location.....	4
1.8	Title and Reference of Methodology	4
1.9	Other Programs.....	4
2	Implementation Status.....	5
2.1	Implementation Status of the Project Activity	5
2.2	Deviations.....	5
2.3	Grouped Project	6
3	Data and Parameters	6
3.1	Data and Parameters Available at Validation.....	6
3.2	Data and Parameters Monitored.....	6
3.3	Monitoring Plan	7
4	Quantification of GHG Emission Reductions and Removals	8
4.1	Baseline Emissions	8
4.2	Project Emissions	10
4.3	Leakage	10
4.4	Net GHG Emission Reductions and Removals	10

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Siliping Small-Scale Hydro Power Project (hereafter referred to as the project) developed by Panzhihua Reshuihe Electric Power Development Co., Ltd (hereafter referred to as the project developer) is a small-scale run-of-river hydropower project, in Sichuan Province, People's Republic of China (hereafter referred to as the Host Country).

Total installed capacity of the Project is 10MW, consisting of two 5MW turbines, with a predicted power supply to the grid of 43,968MWh per annum. The project was registered as a CDM project on 17/06/2009.

Purpose of the project activity is to utilize the water resources of the Wenquan River in a run-of-river hydro power facility to generate lower emissions electricity for the Central China Power Grid (CCPG).

Relevant dates for the Project are as follows:

Construction approval was on 09/05/2004; equipment commissioned started on 20/07/2006; continued operation period started on 25/09/2006. The project was registered as a CDM project on 17/06/2009. The first 7 year renewable crediting period started on 17/06/2009 and expired on 16/06/2016.

During the monitoring period (from 21/01/2015 to 20/12/2015), the net feed-in electricity during this period is 27,745.41MWh, and the emission reduction achieved by the project in this monitoring period is 27,054tCO₂e. The emission reductions in the monitoring period will be verified and issued under VCS rules.

1.2 Sectoral Scope and Project Type

This category would fall within sectoral scope 1: energy industries (Renewable sources).

Project type: Renewable energy projects.

1.3 Project Proponent

Organization name	Panzhihua Reshuihe Electric Power Development Co., Ltd.
Contact person	Li Ou
Title	Project manager
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1.4 Other Entities Involved in the Project

Organization name	Goldchina Consultancy International Co., Ltd.
Role in the project	The buyer
Contact person	Dr, Zheng Zhaoning
Title	Technical director
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1.5 Project Start Date

Construction approval was on 09/05/2004;

1.6 Project Crediting Period

The starting date of the crediting period of the project activity is 17/06/2009 and the end date is 16/06/2016. The total number of years: 7 years.

1.7 Project Location

The project activity is located in the Wenquan Town, Yanbian County, Panzhihua City, Sichuan Province, People's Republic of China. The exact location of the project is defined using geographic coordinates obtained using a Global Positioning System (GPS) receiver: longitude 101°12'13"East, latitude 27°01'25"North. These geographic coordinates are for the main water intake, which is located in Reshuigou.

1.8 Title and Reference of Methodology

AMS-I.D.ver.13-Grid connected renewable electricity generation

Tool to calculate the emission factor for an electricity system, ver.01.1

1.9 Other Programs

Emission Trading Programs and Other Binding Limits:

The project proponent confirmed that, emission reductions generated from 21/01/2015 to 20/12/2015 will be claimed as VCUs under VCS rules. And issued VCUs will be sold only once to one particular buyer.

Once the project proponent are included in an emissions trading program or any other mechanism that includes GHG allowance trading, the VCU issuance under VCS rules will be stop immediately since the date of included in an emissions trading program or any other mechanism that includes GHG allowance trading.

Other Forms of Environmental Credit:

The project is a renewable energy generation project, no GHG emission generated during operation period. Thus, the project doesn't fall into categories that creating GHG emissions primarily for the purpose of its subsequent removal or destruction.

The project has not created another form of environmental credit, which will be verified by DOE.

Participation under Other GHG Programs:

The project has been registered as a CDM project with registration number 2255.

The project has been registered as a VCS project with registration number 175.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The project is constructed on the upper reaches of Wenquan River, a tributary of Yongxing River. The river length is 29.09 km. The project is a diversion type hydropower station. There are two water intakes. The main water intake is located in Reshuigou area, on the Wenquan River. It includes a diversion dam, the maximum height of which is 4m. The other water intake is located in Dabaogou, a tributary of Wenquan River. No reservoir is created. An underground channel connects the two water intakes. The water from the two sources converges together and then flows through a channel underground, then a tunnel and finally a pressure pipe, which forms a water head of 513.47 m and brings the water to the power station. In the power station, two CJA475-W-120/2×9 turbines and two SFW5000-8/2150 generators, the installed capacity being 5MW each for a total of 10MW, are used to generate electricity.

A 35 kV one circuit transmission line (total distance 9 km) from the switchyard to the Qinghe sub-station at Yanbian County is used for connecting the station to the power grid.

The project started commission on 20/07/2006. Continued operation period started on 25 September 2006.

During this monitoring period from 21/01/2015 to 20/12/2015, the project has a normal operation, smooth data transfer and grid connection as per the registered PD without any emergencies or special events, which might impact the applicability of the chosen methodology. During the time (12/04/2015- 22/06/2015), no electricity generation due to lack of water (water was used as irrigation water).

2.2 Deviations

2.2.1 Methodology Deviations

There is no deviation applied to this monitoring period.

2.2.2 Project Description Deviations

There is no deviation applied to 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 / Parameter	EF _{grid, CM, y}
Data unit	tCO ₂ e/MWh
Description	Combined Margin emission factor
Source of data	Calculated according to the procedure outlined in B.6.1 of the validated PDD
Value applied:	0.9751
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of the data	Calculation of baseline emissions
Comments	-

3.2 Data and Parameters Monitored

Data / Parameter	EG _y
Data unit	MWh
Description	Electricity supplied to the grid by the project
Source of data	Measured
Description of measurement methods and procedures to be applied	Measured
Frequency of monitoring/recording	Continuous Measurement, monthly recording
Value monitored:	27,745.41

Monitoring equipment	Meter: continuous two-way electronic power meter Type: Electricity meter Serial Number: 0011405036 Model: DSZ331 Accuracy class:0.5S Calibration frequency: Annually Calibration done on: 18/03/2014; 12/03/2015; validity: Yes
QA/QC procedures to be applied	The meter is calibrated according to the relevant national standard. Data measured by the meter are cross checked using electricity receipts. The project developer and the grid operator will read the main meter once a month.
Purpose of the data	Calculation of baseline emissions
Calculation method	$EG_y = \text{Power export} - \text{power import}$
Comments	

3.3 Monitoring Plan

Data collection procedures

Data generation: electricity exported and imported is measured continuously by an electricity meter which serves as the revenue meter located at the output end of the power station.

Data recording: the grid company and the project developer record the meter readings each month to establish the power supplied to the grid.

Data aggregation: The calculated net power output per month is summed over the monitoring period.

Calculation: Output and import per month is the difference between the cumulative values on the power meter. Net power supplied to the grid is power output minus power import. Net power supplied to the grid * emission factor is emission reductions.

Reporting: The measured and calculated values are included in an Excel sheet and reported in the MR.

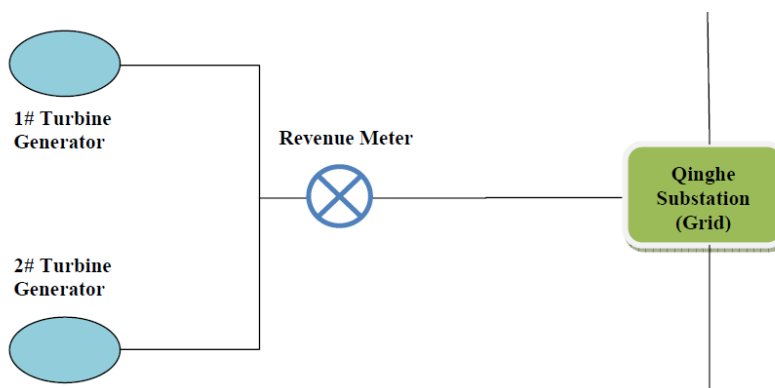
Organizational structure, roles and responsibilities

A manager has been appointed and trained who is responsible for the monitoring system. Monthly recording of power meters falls under the responsibility of the site manager. Sales receipts that are used to cross check monthly recorded power output is the responsibility of the grid company. Reading of all other meters is the responsibility of the operator. These values are only used for crosschecking in case there is doubt about the functioning of the main meter. These other meters are not part of the monitoring plan.

Emergency procedures for the monitoring system

The site manager will notify the grid company in case there is doubt about the correct functioning of the meter mentioned in the monitoring plan. In that case, the grid company and the operator will check and where necessary replace the meter. If the problem can be solved quickly, no CERs are claimed for the period during which the meter was not functioning correctly. If the problem cannot be solved quickly the grid company and the operator estimate the power delivered to the grid using the backup meter. Monitoring of backup meter is not part of the approved monitoring plan.

Line diagram



4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

In accordance with the applied methodology-AMS I.D., version 13, the formula can be described as follows:

The baseline emissions in year y is calculated as

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

Where, EG_y : Net electricity supplied to the grid in year y (MWh)

$EF_{\text{grid,CM,y}}$: Baseline Emission factor (0.9751 tCO₂/MWh)

The detailed calculation of EG_y is calculated below:

Recording date	Monitoring data								
	Electricity export				Electricity import				Net power supply (MWh)
	Meter reading	Power export (MWh)	sales receipt (MWh)	Data for calculation (MWh)	Meter reading	Power import (MWh)	sales receipt (MWh)	Data for calculation (MWh)	
		A	B	C=Min(A,B)		D	E	F=Max(D,E)	G=C-F
20-1-2015	1,539.87				0.02				
20-2-2015	1,582.93	904.26	904.26	904.26	0.02	0.00	0.00	0.00	904.26
20-3-2015	1,599.94	357.21	357.21	357.21	0.02	0.00	0.00	0.00	357.21
12-4-2015 *	1,608.81	186.27	186.27	186.27	0.03	0.21	0.21	0.21	186.06
20-4-2015	1,608.81	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
20-5-2015	1,608.81	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
20-6-2015	1,608.81	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
20-7-2015	1,625.06	341.25	341.25	341.25	0.17	2.94	2.94	2.94	338.31
20-8-2015	1,845.79	4,635.33	4,635.33	4,635.33	0.17	0.00	0.00	0.00	4,635.33
20-9-2015	2,108.36	5,513.97	5,513.97	5,513.97	0.17	0.00	0.00	0.00	5,513.97
20-10-2015	2,459.13	7,366.17	7,366.17	7,366.17	0.17	0.00	0.00	0.00	7,366.17
20-11-2015	2,731.10	5,711.37	5,711.37	5,711.37	0.17	0.00	0.00	0.00	5,711.37
20-12-2015	2,861.24	2,732.94	2,732.94	2,732.94	0.18	0.21	0.21	0.21	2,732.73
Total in 2015									27,745.41

* From 12/04/2015 to 22/06/2015, no electricity has been generated by the project activity. The water resource was preferentially used for farmland irrigation, so no electricity was generated during this time.

The detailed calculation of BE_y is calculated below:

Monitoring Period	EG_y (MWh)	$EF_{grid,CM,y}$ (tCO ₂ e/MWh)	BE_y (tCO ₂ e)
21/01/2015 – 20/12/2015	27,745.41	0.9751	27,054

4.2 Project Emissions

According to CDM methodologies AMS-I.D., greenhouse gas emissions from hydropower projects without reservoir (or with a power density of more than 10 W/m² of flooded area) are considered to be zero. This project has no reservoir. Hence, the project activity emissions are considered to be zero: Project Emissions = 0.

4.3 Leakage

According to the methodology AMS-I.D, there is neither energy generating equipment transferred from another activity nor existing equipment transferred to another activity, so no leakage is to be considered: Leakage = 0.

4.4 Net GHG Emission Reductions and Removals

The calculated emission reductions achieved by the project activity within the covered monitoring period amount to 27,054tCO₂e in total. A summary of monitoring data and emission reductions based on aggregated data on a yearly basis are provided in the tables below.

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
21/01/2015 – 20/12/2015	27,054	0	0	27,054

The estimated annual emission reductions are 42,872tCO₂e as per registered PDD. The monitoring period covers 334 days, $42,872 \times 334 / 365 = 39,230$ tCO₂e, and the emission reduction achieved by the project in this monitoring period is 27,045tCO₂e, so the emission reductions during current monitoring period are lower than the estimates in the registered PDD.