

MONITORING REPORT

4 × 50MW Dayingjiang-3 Hydropower Project Phases 1&2



Project Title	4×50MW Dayingjiang-3 Hydropower Project Phases 1&2
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1 PROJECT DETAILS

1.1 Summary Description of Project

4×50MW Dayingjiang-3 Hydropower Project Phases 1&2 (hereafter referred to as *the project*) is consists of four 50MW, in total 200MW capacity of hydropower generation units developed at Yingjiang County, Dehong Prefecture, Yunnan Province, P. R. China. The objective of the project is to utilize water resources of the Daying River for electricity generation, which was registered on 24th November, 2009 by the VCS board. The project is a grid-connected renewable energy project, from which the electricity generated is sold to the Dehong Power Grid and then fed to Yunnan Power Grid, an integral part of the China Southern Power Grid (hereafter referred to as CSPG). The project activity contributes to the obvious GHG emission reductions by avoiding CO₂ emissions, as CSPG is dominated with fossil fuel fired power plants.

The monitoring period of this time is from 1st April, 2006 to 31st December, 2011. The total electricity replaced by the project during this monitoring period was 4,148,645.39MWh; therefore the emission reduction is 3,614,268tCO₂e throughout the monitoring period.

1.2 Sectoral Scope and Project Type

According to the categorization system of CDM, which is the part of green house gas (GHG) program that has been approved by the VCS Board, the project is categorized as:

Sectoral Scope Number: 1

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

Project Activity: Grid-connected renewable power generation project activities from hydropower plants with accumulated reservoir.

The project is a grouped project with one dam, one reservoir and two sets of power plants (one set for phase 1 and another for phase 2), which has been validated by JCI at the validation stage on 15th October, 2009.

1.3 Project Proponent

The following organization is the project owner and operator of the project:

Organization:	Dehong Kairui Dayingjiang Hydropower Development Co., Ltd.
Street/P.O.Box:	Mengla Road, Pingyuan Town
City:	Yingjiang Country, Dehong Prefecture
State/Region:	Yunnan Province
Postfix/ZIP:	679300
Country:	People's Republic of China
Tel:	+86 692 8187758
Represented by:	Yinggui Yi
Title:	Deputy general manager
Last Name:	Yi
First Name:	Yinggui
Mobile:	+86 135778371896

Tel:	+86 692 8187758
Personal E-mail:	Yiyinggui59@126.com

1.4 Other Entities Involved in the Project

The following organization is the purchaser of the credits:

Organization:	Tepia Corporation Japan Co., Ltd.
Street/P.O.Box:	3-3-23,Nakanoshima,Kita-ku
City:	Osaka
Postfix/ZIP:	5500015
Country:	Japan
Tel:	+81 6 6479 3601
E-Mail:	info@tepia.co.jp
URL:	http://www.tepia.co.jp
Represented by:	Xuefeng Wen
Title:	General Manager
Saluation:	Mr.
Last Name:	Wen
First Name:	Xuefeng
Department:	Tokyo Branch
FAX:	+81 3 6721 5506
Tel:	+81 3 6721 5505
Personal E-Mail:	wenxf@tepia.co.jp

1.5 Project Start Date

The project started on 18th March, 2006 in fact however, it has to be later than 28th March, 2006 according to VCS Standard (version 1), so that the starting date of the project was set as 1st April, 2006 for the conservative principle.

1.6 Project Crediting Period

The crediting period for the project is selected the renewable crediting period of 10 years which is renewed at most two times, the maximum of 30 years. The starting date of the first crediting period is 1st April, 2006 then it lasts till 31st March, 2016.

1.7 Project Location

Yingjiang Country, Dehong Prefecture, Yunnan Province, P. R. China

1.8 Title and Reference of Methodology

The approved methodology applied to the project is ACM0002 (ver.10), “*Consolidated methodology for grid-connected electricity generation from renewable sources*”.

ACM0002 refers to the following tools:

- *Tool for the demonstration and assessment of additionality (ver.05.2)*
- *Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (ver.02)*
- *Tool to calculate the emission factor for an electricity system (ver.01.1)*

For more information regarding the methodology please refer to

[“http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L”](http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L)

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The following table represents the significant milestones as implementing the project. No special events has been occurred which would have some impact on the monitoring of GHG emission reduction of the project after the registration.

Year	Date	Main event	Remarks
2006	18 th March	Commissioning Start	Phase1 (*Project starting date of the entire project)
2006	1 st April	Starting date of the first monitoring period	-
2008	4 th May	Commissioning Start	Phase2
2009	15 th October	Completion of Validation Report	By JCI
2009	24 th November	Project registration	-

2.2 Deviations from the Monitoring Plan

There is one deviation in the monitoring plan from the registered PD on November 24th, 2009.

Originally M2 and M4 meters which are described as the backup meters for this project are actually possible to be used as the backup meters however, both meters are confirmed that used for measuring the reactive power, not the active power at each point. Therefore the actual electric power supplied from this project is measured with M3 and M5 and when there is some trouble on M3 and M5 meters, then the emission reduction is calculated based on the invoice data measured by the grid company. The deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in compliance with the applied methodology.

The detail of this change can be referred to the section 3.3 *Description of the Monitoring Plan*.

2.3 Grouped Project

The project is a grouped project. It consists of one dam, one reservoir, and two sets of power plants (one set for phase 1 and another for phase 2). Both two phases of this project have been completed on 18th March, 2006 and 4th May 2008 respectively, moreover it has been validated on 15th October, 2009 in the validation report made by Japan Consulting Institute, an entity by UNFCCC to undertake validation services in the sector in which this project is undertaken.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	EF _y
Data unit:	tCO ₂ e/MWh
Description:	The baseline combined margin CO ₂ emission factor for grid connected power generation in year y
Source of data:	Registered PD
Value applied:	0.8712
Purpose of the data:	The data is used for calculating the baseline emission
Any comment:	-

3.2 Data and Parameters Monitored

Data Unit / Parameter:	EG _{ex}
Data unit:	MWh
Description:	Electricity delivered to the Grid by the project activity
Source of data:	Directly measured by electricity meter at hydropower station
Description of measurement methods and procedures to be applied:	Electricity delivered to the Grid by the project activity will be measured by electricity meter(s) according to the relevant national electric industry standard and regulations.
Frequency of monitoring/recording:	Monthly
Value monitored:	4,148,652.43
Monitoring equipment:	Electric meter
QA/QC procedures to be applied:	Readings on electricity meter. Check whether the reading is the same as that is shown on power sales invoice provided by the grid company to which the project is connected. Please refer to Monitoring Plan for detailed information.
Calculation method:	
Any comment:	Copies in electronic format and paper documents. Keep 2 years after the project is completed.

Data Unit / Parameter:	EG_{im}
Data unit:	MWh
Description:	Electricity supplied by the grid to project activity
Source of data:	Directly measured by electricity meter at hydropower station.
Description of measurement methods and procedures to be applied:	Electricity supplied by the grid to project activity will be measured by electricity meter(s) according to the relevant national electric industry standard and regulations.
Frequency of monitoring/recording:	Monthly
Value monitored:	7.04
Monitoring equipment:	Electric meter
QA/QC procedures to be applied:	Readings on electricity meter. Check whether the reading is the same as that is shown on power sales invoice provided by the grid company to which the project is connected. Please refer to Monitoring Plan for detailed information.
Calculation method:	
Any comment:	The value is zero when the amount of the electricity supplied to Dayingjiang-2 hydropower station is greater than that supplied by the grid through the point M3 from the conservative point of view. Copies in electronic format and paper documents. Keep 2 years after the project is completed.

Data Unit / Parameter:	Cap_{PJ}
Data unit:	MW
Description:	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data:	Project site
Description of measurement methods and procedures to be applied:	Verified on site
Frequency of monitoring/recording:	every onsite verification
Value monitored:	50MW*4 units, 200 in total
Monitoring equipment:	
QA/QC procedures to be applied:	-
Calculation method:	-
Any comment:	-

Data Unit / Parameter:	A_{PJ}
Data unit:	km 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.

Source of data:	Project site
Description of measurement methods and procedures to be applied:	The data will be measured yearly by professional design institute.
Frequency of monitoring/recording:	Every year
Value monitored:	0.108
Monitoring equipment:	-
QA/QC procedures to be applied:	-
Calculation method:	-
Any comment:	-

3.3 Description of the Monitoring Plan

The monitoring plan ensures the accuracy of monitoring activity and its result to acquire the credible amount of emission reductions during the crediting period of the project.

Some of the factors relevant to determining the baseline emission are set ex-ante, which have been validated previously. Those data are listed in the section 3.1 of this document. Therefore the monitoring activity is conducted for measuring the amount of total electricity supplied to the grid from the project activity, installed capacity of the power plant and the area of the reservoir surface.

In order to operate and manage this project and the monitoring activity, the project owner appropriately trains the operating staffs to record and store those data. The daily operation of the power station and the data recording activity are carried out by the hydropower station staffs and the data is to be reported to the company manager. In addition the manager is to be reported other required data moreover, the person is responsible for its quality.

The project activity is connected to the Yunnan Power Grid through one or more on-site transformer stations. The project is connected by a 220 kV line to the Yingjiang 220kV Switching Station which is connected to the Yunnan Power Grid. The project is also connected through a 110 kV power line with the 110kV Dayingjiang-2 Hydropower Station to supply power from Dayingjiang-2 Hydropower Station to the power grid. An indicative grid connection diagram is provided in the following figure.

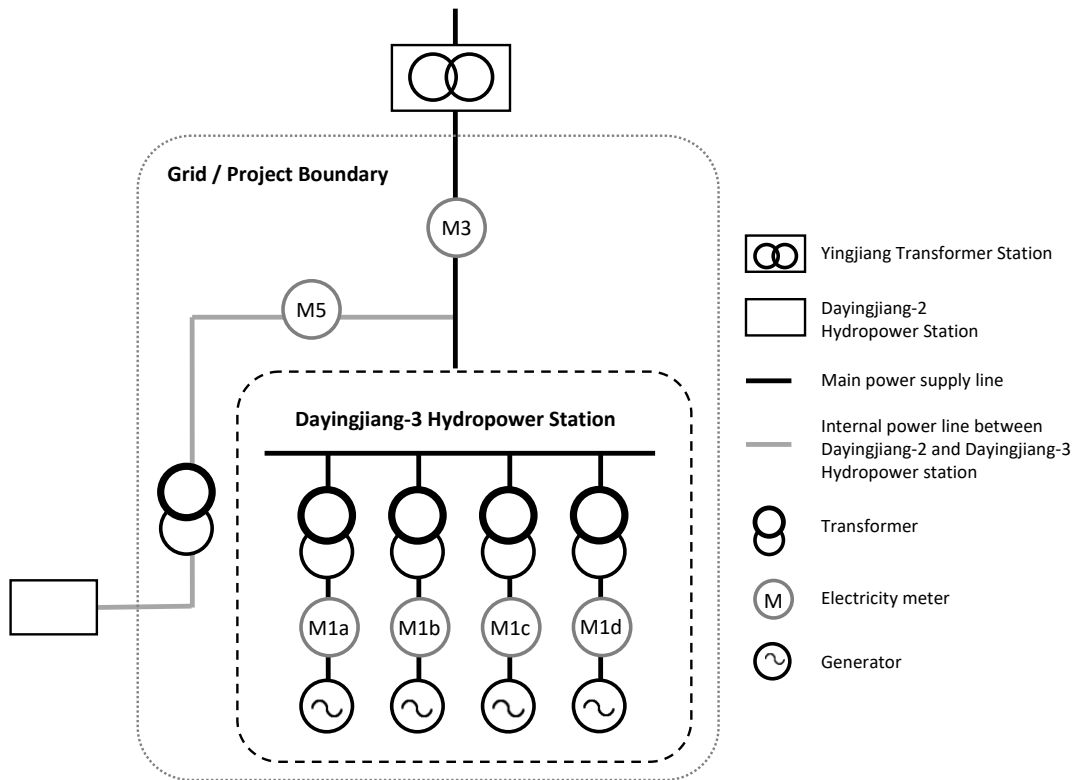


Figure 1. Scheme of grid connection of Dayingjiang-3 Phases 1&2 Hydropower Project

As indicated in the above figure, the project is connected by one main power supply line (black bold) which delivers the generated power at both the project and Dayingjiang-2 Hydropower Station to the grid, so that the net electricity supplied by the project is calculated for deducting the amount of electricity supplied by Dayingjiang-2 hydropower station from the total electricity supplied by both Dayingjiang-2 and Dayingjiang-3 hydropower stations. The meters M3 and M5 owned by the grid company are the main meters for calculating emission reduction.

Originally the project has two more meters, M2 and M4, for backup however, the monitoring plan has changed to have no backup meters. It is because however those two meters are certainly possible to measure either the active or reactive power, these meters are confirmed to be used for measuring the reactive power but not the active power actually. When some trouble happened on the M3 and M5 meters, the data on the invoice will be used for calculate the emission reduction.

These data are metered by the following entities as below:

- Total electricity supplied by Dayingjiang-2 and Dayingjiang-3 hydropower station:

Grid company: The grid company meters the power export to and imported from the hydropower station with its own electricity meter M3. The meter can record two readings; i.e. power delivered to the grid (M3_{ex}) and power received from the grid (M3_{im}). The regulations of the grid company require

annual calibrations of both metering instruments. The grid company issues the receipt which entered the metered data by M3.

Calibration: Calibrations are carried out by the grid company or by a certified company appointed by the grid company. If there are any substantial discrepancies between the readings of the meters throughout the year, both instruments will be recalibrated.

- Electricity supplied by Dayingjiang-2 hydropower station:

Grid company: The power supplied from Dayingjiang-2 Hydropower Station to the grid is metered with a standard electricity meters M5 in accordance with national regulations. The metering instruments can record either a net figure of power delivered to the grid or two readings; i.e. power delivered to the grid (M5_{ex}) and power received from the grid (M5_{im}). The regulations of the grid company require annual calibrations of both metering instruments.

Calibration: Calibrations are carried out by the grid company or by a certified company appointed by the grid company. If there are any substantial discrepancies between the readings of the metering instruments throughout the year, both instruments will be recalibrated.

- Determination of net power supply:

Net electricity supplied to the grid by the project (EG_y) is calculated monthly as:

$$EG_y = EG_{ex} - EG_{im} = (M3_{ex} - M3_{im}) - (M5_{ex} - M5_{im})$$

where:

EG _{ex}	electricity supplied by the project through the power line(s) (in MWh) metered by the grid company (evidenced by monthly sales receipts) and cross-checked against the readings of metering instruments of the project entity.
EG _{im}	electricity delivered to the project through the power line(s) metered by the grid company (evidenced by monthly billing receipts) and cross-checked against the readings of metering instruments of the project entity.
M3 _{ex}	electricity supplied by the project and Dayingjiang-2 Hydropower Project through the main power line (in MWh) metered by the grid company (evidenced by monthly sales receipts) and cross-checked against the readings of metering instruments of the project entity.
M3 _{im}	electricity delivered to the project and Dayingjiang-2 Hydropower Project through the main power line (in MWh) metered by the grid company (evidenced by monthly sales receipts) and cross-checked against the readings of metering instruments of the project entity.
M5 _{ex}	electricity supplied by Dayingjiang-2 Hydropower Project through the main power line (in MWh) metered by the grid company (evidenced by monthly sales receipts) and cross-checked against the readings of metering instruments of the project entity.
M5 _{im}	electricity delivered to Dayingjiang-2 Hydropower Project through the main power line (in MWh) metered by the grid company (evidenced by monthly sales receipts) and cross-checked against the readings of metering instruments of the project entity.

instruments of the project entity

The results of calibration are shown on the Table in details below.

Calibration results

No.	Item	SN	Accuracy Class	Date of Calibration	Result	On-line Period
M3	EG _{export,y} EG _{import,y} between Project & Grid	2516279	0.2S	21/02/2006	Pass	01/04/2006 - 31/12/2011
				02/09/2006	Pass	
				25/03/2008	Pass	
				21/08/2008	Pass	
				11/09/2009	Pass	
				27/09/2010	Pass	
				25/02/2010	Pass	
				07/07/2011	Pass	
				09/11/2011	Pass	
M5	EG _{export,y} EG _{import,y} between Dayingjiang-2 & Project	2516280	0.2S	21/02/2006	Pass	01/04/2006 - 31/12/2011
				02/09/2006	Pass	
				25/03/2008	Pass	
				21/08/2008	Pass	
				11/09/2009	Pass	
				27/09/2010	Pass	
				25/02/2010	Pass	
				07/07/2011	Pass	
				09/11/2011	Pass	

The meters for monitoring were calibrated by Yunnan Electric Power Test & Research Institute Group Co., Ltd.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The following table shows the baseline emission during the monitoring period. The “EG_{im} (Electricity supplied by the grid to project activity)” measured at M5 is excluded for the conservative perspective. The electric meter at M3 measures the electricity supplied from the local grid to both Dayingjiang-2 and Dayingjiang-3 (the site of the project) power stations.

The emission factor of CSPG (EF_y), 0.8712tCO₂e/MWh is validated at the validation stage.

Table 1. Baseline emission and parameters monitored

Year	Month	(M3) (MWh)	EG _{ex} (M5) (MWh)	(M3 - M5) (MWh)	EG _{im} (M3) (MWh)	EG _y (EG _{ex} - EG _{im}) (MWh)	BE _y (tCO ₂ e)
2006	Apr	25,481.28	0.00	25,481.28	0.00	25,481.28	22,199.00
	May	28,125.68	0.00	28,125.68	0.00	28,125.68	24,503.00
	Jun	24,483.36	0.00	24,483.36	0.00	24,483.36	21,329.00
	Jul	25,044.36	0.00	25,044.36	0.00	25,044.36	21,818.00
	Aug	32,802.66	0.00	32,802.66	0.00	32,802.66	28,577.00
	Sep	53,497.84	0.00	53,497.84	0.00	53,497.84	46,607.00
	Oct	70,427.50	0.00	70,427.50	0.00	70,427.50	61,356.00
	Nov	49,846.28	0.00	49,846.28	0.00	49,846.28	43,426.00
	Dec	37,551.14	0.00	37,551.14	0.00	37,551.14	32,714.00
	Sub-total:	347,260.10	0.00	347,260.10	0.00	347,260.10	302,529.00
2007	Jan	27,644.76	0.00	27,644.76	0.00	27,644.76	24,084.00
	Feb	43,431.08	8,602.70	34,828.38	0.00	34,828.38	30,342.00
	Mar	39,523.88	10,180.10	29,343.78	0.00	29,343.78	25,564.00
	Apr	46,911.00	13,837.00	33,074.00	0.00	33,074.00	28,814.00
	May	50,368.10	17,317.00	33,051.10	0.00	33,051.10	28,794.00
	Jun	86,698.92	27,040.02	59,658.90	0.00	59,658.90	51,974.00
	Jul	84,411.80	30,655.77	53,756.03	1.54	53,754.49	46,830.00
	Aug	27,534.10	8,557.21	18,976.89	0.00	18,976.89	16,532.00
	Sep	24,660.68	24,687.96	-27.28	1.54	-28.82	-25.00
	Oct	34,271.38	34,308.38	-37.00	0.88	-37.88	-33.00
	Nov	41,305.44	41,341.70	-36.26	0.66	-36.92	-32.00
	Dec	47,070.32	27,860.62	19,209.70	0.00	19,209.70	16,735.00
	Sub-total:	553,831.46	244,388.47	309,442.99	4.62	309,438.37	269,579.00
2008	Jan	49,094.32	11,673.99	37,420.33	0.66	37,419.67	32,600.00
	Feb	68,535.06	21,112.34	47,422.72	0.00	47,422.72	41,314.00
	Mar	58,636.16	18,540.37	40,095.79	0.00	40,095.79	34,931.00
	Apr	42,860.84	12,195.74	30,665.10	0.00	30,665.10	26,715.00
	May	60,249.86	15,741.53	44,508.33	0.66	44,507.67	38,775.00
	Jun	99,140.58	24,761.62	74,378.96	0.00	74,378.96	64,798.00
	Jul	65,964.14	19,261.97	46,702.17	0.00	46,702.17	40,686.00
	Aug	46,884.20	13,438.92	33,445.28	0.00	33,445.28	29,137.00
	Sep	102,443.44	29,265.02	73,178.42	0.00	73,178.42	63,753.00
	Oct	134,470.16	36,856.42	97,613.74	0.00	97,613.74	85,041.00

	Nov	123,877.16	33,925.76	89,951.40	0.00	89,951.40	78,365.00
	Dec	116,041.64	31,240.44	84,801.20	0.00	84,801.20	73,878.00
	Sub-total:	968,197.56	268,014.12	700,183.44	1.32	700,182.12	609,993.00
2009	Jan	87,255.52	23,862.34	63,393.18	0.00	63,393.18	55,228.00
	Feb	51,973.46	13,270.14	38,703.32	0.00	38,703.32	33,718.00
	Mar	53,292.14	13,882.97	39,409.17	0.00	39,409.17	34,333.00
	Apr	52,360.88	12,573.26	39,787.62	0.00	39,787.62	34,662.00
	May	30,511.14	7,930.12	22,581.02	0.00	22,581.02	19,672.00
	Jun	97,403.68	27,422.38	69,981.30	0.00	69,981.30	60,967.00
	Jul	162,305.66	41,951.54	120,354.12	0.00	120,354.12	104,852.00
	Aug	156,294.38	45,810.86	110,483.52	0.00	110,483.52	96,253.00
	Sep	143,962.06	39,370.06	104,592.00	0.00	104,592.00	91,120.00
	Oct	153,481.02	37,431.15	116,049.87	0.00	116,049.87	101,102.00
	Nov	100,233.76	26,601.17	73,632.59	0.00	73,632.59	64,148.00
	Dec	77,946.00	21,557.18	56,388.82	0.00	56,388.82	49,125.00
	Sub-total:	1,167,019.70	311,663.18	855,356.52	0.00	855,356.52	745,180.00
2010	Jan	55,538.56	15,203.50	40,335.06	0.00	40,335.06	35,139.00
	Feb	39,455.24	10,086.56	29,368.68	0.00	29,368.68	25,585.00
	Mar	37,462.70	8,941.33	28,521.37	0.00	28,521.37	24,847.00
	Apr	47,743.96	11,722.39	36,021.57	0.22	36,021.35	31,381.00
	May	51,239.76	13,055.86	38,183.90	0.66	38,183.24	33,265.00
	Jun	118,416.32	30,337.38	88,078.94	0.00	88,078.94	76,734.00
	Jul	168,357.86	41,671.26	126,686.60	0.00	126,686.60	110,369.00
	Aug	179,946.14	46,893.70	133,052.44	0.00	133,052.44	115,915.00
	Sep	150,718.26	42,203.04	108,515.22	0.00	108,515.22	94,538.00
	Oct	151,649.96	37,390.23	114,259.73	0.00	114,259.73	99,543.00
	Nov	154,583.22	40,457.91	114,125.31	0.00	114,125.31	99,425.00
	Dec	109,636.78	28,152.78	81,484.00	0.00	81,484.00	70,988.00
	Sub-total:	1,264,748.76	326,115.94	938,632.82	0.88	938,631.94	817,729.00
2011	Jan	97,044.42	26,291.85	70,752.57	0.00	70,752.57	61,639.00
	Feb	69,782.24	18,989.70	50,792.54	0.00	50,792.54	44,250.00
	Mar	68,445.96	18,928.45	49,517.51	0.00	49,517.51	43,139.00
	Apr	45,391.50	378.58	45,012.92	0.00	45,012.92	39,215.00
	May	73,359.66	19,351.11	54,008.55	0.22	54,008.33	47,052.00
	Jun	149,720.34	42,177.43	107,542.91	0.00	107,542.91	93,691.00
	Jul	173,017.68	43,764.07	129,253.61	0.00	129,253.61	112,605.00
	Aug	149,281.88	37,558.66	111,723.22	0.00	111,723.22	97,333.00

Sep	155,905.86	38,424.85	117,481.01	0.00	117,481.01	102,349.00
Oct	157,461.92	39,380.79	118,081.13	0.00	118,081.13	102,872.00
Nov	111,127.28	29,630.13	81,497.15	0.00	81,497.15	71,000.00
Dec	79,931.50	17,818.06	62,113.44	0.00	62,113.44	54,113.00
Sub-total:	1,330,470.24	332,693.68	997,776.56	0.22	997,776.34	869,258.00
Total	5,631,527.82	1,482,875.39	4,148,652.43	7.04	4,148,645.39	3,614,268.00

Dayingjinag-3 power station has been stopped during September to November in 2007. It was because there was a human error trouble brought about by the outsourcing operating company, so that the project owner stopped the operation and changed the operating company during the period. On the other hands, Dayingjiang-2 power station had continuously generated electricity. The part of electricity generated at Dayingjiang-2 power station was supplied through the point M5 and consumed at the Dayingjiang-3 power station and then the rest of electricity was supplied to the power grid through M3. Thus the amount of electricity supplied from Dayingjiang-2 power station to Dayingjiang-3 power station was deducted, and as a result "Electricity delivered to the Grid by the project activity (EG_{ex})" work out to minus from September to November in 2007.

In addition, it can be seen from the Table on Page 11, the results of calibration that there are gaps in the calibration of meters from. Given the yearly requirement in the monitoring plan, the meters were out of calibration from 2 Sept 2007 to 25 March 2008, from 21 August 2009 to 11 September 2009, from 11 September 2010 to 27 September 2010, and from 25 February 2011 to 7 July 2011. Therefore, the accuracy of the meter(0.2S) are discounted to the values of electricity exported to the grid and added to the values of electricity imported from the grid during the days that the meter was NOT correctly calibrated. Thus, the values of net electricity exported to the grid are consequently revised conservatively and accurately. The revised baseline emissions are show on Table below.

Revised Baseline Emission

Monitoring Periods	Periods and Days without correct calibration		Electricity exported, EG _{export,y} and imported, EG _{import,y} (MWh)		Revised Electricity exported, EG _{export,y} and imported, EG _{import,y} (MWh)		Revised Net Electricity, EG _y (MWh)	Baseline Emission, BE _y (tCO ₂ e)		
	Periods	Days	(A)	(B)	(A')	(B')	EG _y = (A') – (B')	(C)	(C')	(D) = (C) – (C')
2006	None	0	347,260.10	0.00	347,260.10	0.00	347,260	302,529	302,529	0
2007	2 Sep.-31 Dec.	121	309,442.99	4.62	309,237.83	12.45	309,225	269,579	269,393	186
2008	1 Jan.-25 Mar.	85	700,183.44	1.32	699,857.33	6.38	699,851	609,993	609,708	285
2009	21 Aug.-11 Sep.	22	855,356.52	0.00	855,253.41	0.00	855,253	745,180	745,096	84
2010	11 Sep.-27 Sep.	17	938,632.82	0.88	938,545.39	5.41	938,540	817,729	817,655	74
2011	25 Feb.-7 Jul.	133	997,776.56	0.22	997,049.41	1.42	997,048	869,258	868,628	630
Total	-	378	4,148,652	7	4,147,203	26	4,147,178	3,614,268	3,613,009	1,259
NOTES:										
(A)- Electricity exported to Grid on Verification Report (page 20-21)										
(B)- Electricity imported from Grid on Verification Report (page 20-21)										
(A')- Revised Electricity exported to Grid, calculated conservatively on this PP's response										
(B')- Revised Electricity imported from Grid, calculated conservatively on this PP's response										
(C)- Baseline Emission reported on Verification Report (page 20-21)										
(C')- Revised Baseline Emission Calculated conservatively on this PP's response										
(D)- Difference before and after revision of Baseline Emission, BE _y with discounting accuracy of the meter										

4.2 Project Emissions

According to the validation report completed in 15th October, 2009 by JCI, the project uses renewable sources and there are no project emissions; therefore there is no project emissions included in this project activity, i.e.

$$PE_y = 0$$

4.3 Leakage

Considering the ACM0002, no leakage emission is expected in this project activity as the hydropower station is newly built, i.e.

$$LE_y = 0$$

4.4 Summary of GHG Emission Reductions and Removals

The emission reduction of the project during the monitoring period is calculated as following table:

Table 2. Summary of GHG emission reduction

Year	BEy	PEy	LEy	ERy
2006 (Apr. - Dec.)	302,529	0	0	302,529
2007	269,393	0	0	269,393
2008	609,708	0	0	609,708
2009	745,096	0	0	745,096
2010	817,655	0	0	817,655
2011	868,628	0	0	868,628
Total:				3,613,009
Average:				608,168

5 ADDITIONAL INFORMATION

Table 3 The annual operating data from April 2006 to December 2011(before revised)

	EGex	Egim	Egy (EGex - EGim)
2006 (Apr.- Dec.)	347,260.10	0.00	347,260.10
2007	309,442.99	4.62	309,438.37
2008	700,183.44	1.32	700,182.12
2009	855,356.52	0.00	855,356.52
2010	938,632.82	0.88	938,631.94
2011	997,776.56	0.22	997,776.34
Total	4,148,652.43	7.04	4,148,645.39

Table 4 The annual operating data from April 2006 to December 2011(after revised)

	EGex	EGim	EGy (EGex - EGim)
2006 (Apr.- Dec.)	347,260.10	0.00	347,260
2007	309,237.83	12.45	309,225
2008	699,857.33	6.38	699,851
2009	855,253.41	0.00	855,253
2010	938,545.39	5.41	938,540
2011	997,049.41	1.42	997,048
Total	4,147,203.00	26.00	4,147,178