Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	Everbright Suqian & Huaining Bundled Solar PV Power Generation Project
Reference number of the project activity	5913
Version number of the monitoring report	02
Completion date of the monitoring report	17/05/2013
Registration date of the project activity	19/03/2012
Monitoring period number and duration of this monitoring period	Monitoring period 01, 01/04/2012-31/03/2013 (both the two days included)
Project participant(s)	Everbright Photovoltaic Energy (Suqian) Limited (Project owner); Innovative Carbon Investment Corporation
Host Party(ies)	P.R.China
Sectoral scope(s) and applied methodology(ies)	Sectoral scope: Scope 1: Energy industries (renewable-/non-renewable sources) Selected methodology(ies): AMS-I.D. “Grid connected renewable electricity generation”(Version 17.0)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	9,033 tCO_2e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	7,892 tCO_2e in this monitoring period, and 5,974tCO_2e during the period of 01/04/2012-31/12/2012; 1,918 tCO_2e during the period of 01/01/2013-31/03/2013

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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Everbright Suqian & Huaining Bundled Solar PV Power Generation Project (hereinafter referred to as the bundled project) is a grid connected solar photovoltaic (PV) project with a total installed capacity of 10.28MW (1.85MW+2MW+6.43MW) and the estimated annual electricity generation will be 11,095MWh. The bundled project includes 3 small-scale PV power generation projects as follows:

Jiangsu Suqian PV Power Plant 1.85MWp Project (hereafter referred to as the Suqian Phase I Project) is estimated to deliver 1,968MWh electricity to East China Power Grid (ECPG) annually with the installed capacity of 1.85MW. The project is built on the roof of Shuanggou and Yanghe Distillery, Suqian city, Jiangsu province, P.R.China. And the estimated annual average emission reductions of the project are 1,603 tCO_2e.

Jiangsu Suqian PV Power Plant Phase II 6.43MWp Project (hereafter referred to as the Suqian Phase II Project) is estimated to deliver 6,986MWh electricity to East China Power Grid (ECPG) annually with the installed capacity of 6.43MW. The project is built on the roof of Yanghe Distillery, Suqian city, Jiangsu province, P.R.China. And the estimated annual average emission reductions of the project are 5,687 tCO_2e.

Anhui Huaining PV Power Plant 2MWp Project (hereafter referred to as the Huaining Project) is estimated to deliver 2,141MWh electricity to East China Power Grid (ECPG) annually with the installed capacity of 2MW. The project is located in Anqing city, Anhui province, P.R.China. And the estimated annual average emission reductions of the project are 1,743 tCO_2e.

As a result, the electricity generated by the bundled project can displace part of the power from the fossil fuel-fired power plants of ECPG, and the expected annual GHG emission reductions are 9,033tCO_2e.

Suqian Phase I Project construction began on 11/2010; and the project was commissioned on 06/12/2010 The operation period of the project is 25 years.

Suqian Phase II Project construction began on 10/2011; and the project was commissioned on 22/11/2011. The operation period of the project is 25 years.

Huaining Project construction began on 11/2010; and the project was commissioned on 22/06/2011. The operation period of the project is 25 years.

The monitoring period is from 01/04/2012 to 31/03/2013, the emission reduction achieved by Suqian phase I project is 1,715tCO_2e, the emission reduction achieved by Suqian phase II project is 4,492tCO_2e, and the emission reduction achieved by Huaining project is 1,685tCO_2e. As a result, the emission reduction achieved by the bundled project is 7,892tCO_2e.

A.2. Location of project activity

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The three small-scale projects are located in Suqian city, Jiangsu Province and Anqing city, Anhui province, P. R. China. Each location of plant is presented as follows:

Name of Project	Lati-tude	Longi-tude
Suqian Phase I Project[1]	32°09'58" ~32°10'05" N (Sihong County) 33°13'36"~33°13'45"N (Yanghe Town)	119°29'47"~119°30'18"E (Sihong County) 118°11'25"~118°11'53"E (Yanghe Town)
Suqian Phase II Project	33°47'9"~33°47'30"N	118°21'37" ~118°26'2"E
Huaining Project	30°46'14" ~30°46'39" N	116°47'46"~116°48'20"E

A.3. Parties and project participant(s)

[1] Suqian Phase I Project is built in two locations, one is Sihong County and another is Yanghe Town.

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
P.R.China (host)	Everbright Photovoltaic Energy (Suqian) Limited	No
United Kingdom of Great Britain and Northern Ireland	Innovative Carbon Investment Corporation	No

A.4. Reference of applied methodology

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1. Baseline & Monitoring methodology:

AMS-I.D.: "Grid connected renewable electricity generation" (Version 17.0)

2. Reference:

"Tool to calculate the emission factor for an electricity system" (Version 02.2.0)

More information on the methodology and tools listed above is available at the following website:

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

A.5. Crediting period of project activity

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For the bundled project, the renewable crediting period (7 years ×3) years is adopted The first crediting period is from 01/04/2012 to 31/03/2019, and its length is 7 years.

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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The bundled project was registered on 19/03/2012. The solar cell module, dc-to-ac converter (inverter) and transformer are installed in accordance with the registered PDD. DC electricity energy generated by the Solar cell modules in the sunshine was converted into AC electricity by the dc-to-ac converter (inverter). In the end, the AC electricity was boosted by transformer and delivered to the East China Power Grid.

The key technical specifications of the modules and inverters are listed in the following table.

Table B-1 Technical parameters of of solar modules and inverters

Plant Name		Suqian Phase I Project	Suqian Phase II Project	Huaining Project
Solar Cells	Type	TW 230 (28) P	TW 240 (28)P	TWSF-aSi- 95W-1
	Manufacturer	Tianwei New Energy (Chengdu) PV Module Co., Ltd	Tianwei Solution (Beijing) Co., Ltd	Baoding Tianwei Solarfilms Co., Ltd
	Material	polycrystalline silicon	polycrystalline silicon	amorphous silicon film
	Peak power	230 Wp	240Wp	93.01~98.00 Wp
	Rated power voltage	29.7V	30.3V	102~113.08V
	Open circuit voltage	36.7V	37.1V	134.58~142.23V
	Rated power current	7.74A	7.92A	0.93~1.17A
	Short circuit	8.72A	8.88A	1.11~1.34A

	current				
	Number of cells	8,080 Pieces	26,800 Pieces[2]		21,030 Pieces
Inverter	Type	Sunway TG 750-800V-TE	Sunway TG750-900V-TE	Solar Ocean 500TL	Sunway TG610-800V-TE
	Manufacturer	Carraro China Drive Systems Co. Ltd.	Carraro China Drive Systems Co. Ltd.	Samil New energy Co., Ltd	Carraro China Drive Systems Co. Ltd.
	Maximum DC Power	684.3kW	770kW	570kW	553.7kW
	MPPT voltage range	495~820V	495~820V	450~820V	415~760V
	Rated capacity	665.1 kW	665.1 kW	500 kW	514.6 kW
	Rated output voltage	320 V	320 V	270 V	270 V
	Rated input current	1253.4 A	1253.4 A	1200 A	1044.5 A
	Number of units	3 units	8 units	2 units	4 units
	Maximum Efficiency	98.5%	98.5%	98.6%	98.5%

The flow diagram of the bundled project is shown below:

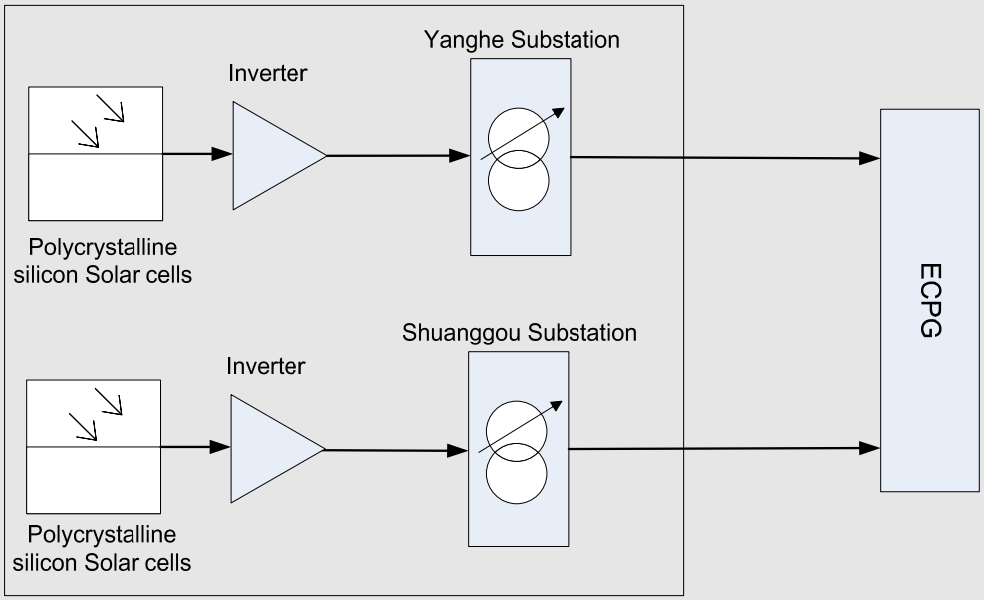

Figure B-1 The flow diagram of Suqian Phase I Project

[2] According to the footnote 3 of the registered PDD, the solar cells number of 24,800 pieces was only for the already purchased part of the equipments. However, as confirmed by the project owner, 2,000 more pieces of the solar cells with the same technical parameters are purchased and installed at the project site. Therefore, the total number of the solar cells installed by Suqian phase II project is 26,800 pieces with the installed capacity of 6.43MW.

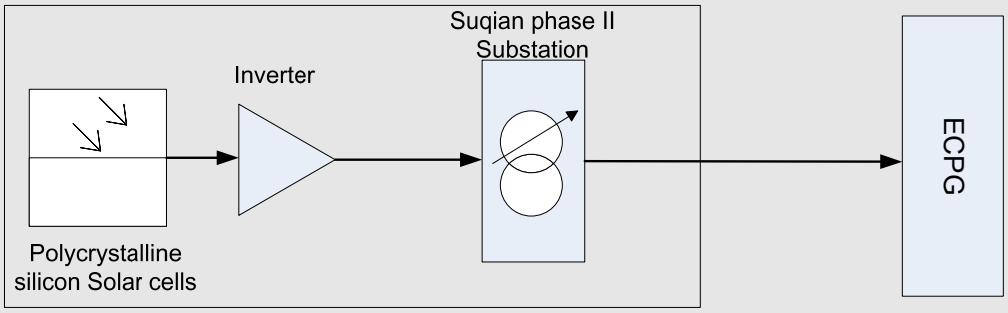

Figure B-2 The flow diagram of Suqian Phase II Project

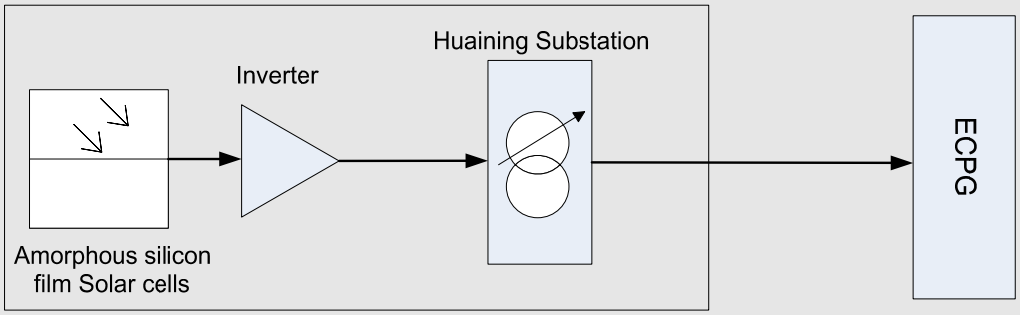

Figure B-3 The flow diagram of Huaining Project

The Main electricity meter M1 (See Figure C-2 below) was replaced on 30/11/2012 as required by the grid company in order for the unified management.

The amount of electricity delivered to and imported from the grid occurred by Suqian Phase I Project during the replacement (from 10:00 to 10:30 a.m. on 30/11/2012) is not considered in this GHG emission reduction, The documented memorandum of replacement of meter was issued by the power grid company. And the calibration of the new Main electricity meter was taken on 16/10/2012 indicates that the new Main energy meter is qualified to measure the electricity exported to and imported from the grid by the Project. Thus the replacement did not affect the measurement of electricity generation.

No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

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There is no temporary deviation from registered monitoring plan or applied methodology for this monitoring period.

B.2.2. Corrections

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There is no correction for this monitoring period.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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There is no permanent change from registered monitoring plan and applied methodology for this monitoring period.

B.2.4. Changes to project design of registered project activity

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There is no change to project design of registered project activity.

B.2.5. Changes to start date of crediting period

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Not applicable.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable.

SECTION C. Description of monitoring system

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The monitoring system is designed and implemented in accordance with the requirements of AMS-I.D."Grid connected renewable electricity generation" (Version 17.0) and the registered PDD.

1. Monitoring organization

Everbright Photovoltaic Energy (Suqian) Limited has established and maintained the appropriate monitoring and quality control systems, the responsibilities for carrying out these tasks are broadly elaborated in below:

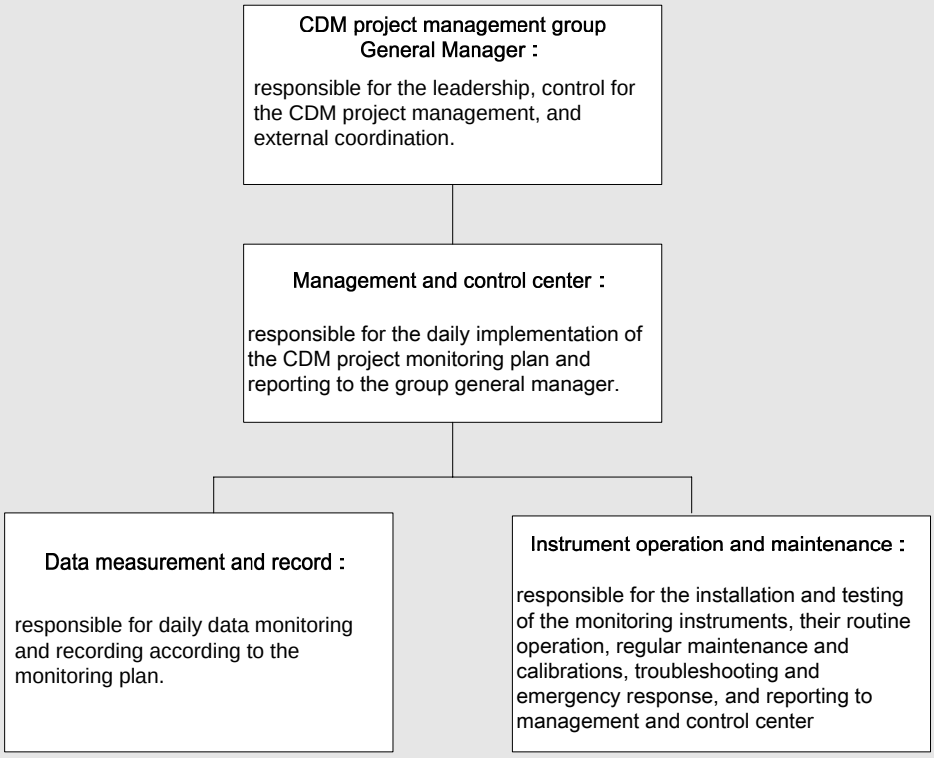

Figure C-1 Structure and function of CDM project management group

All the staffs had obtained the qualification by corresponding training before working during this monitoring

period of the bundled project.

2. Installation of meters

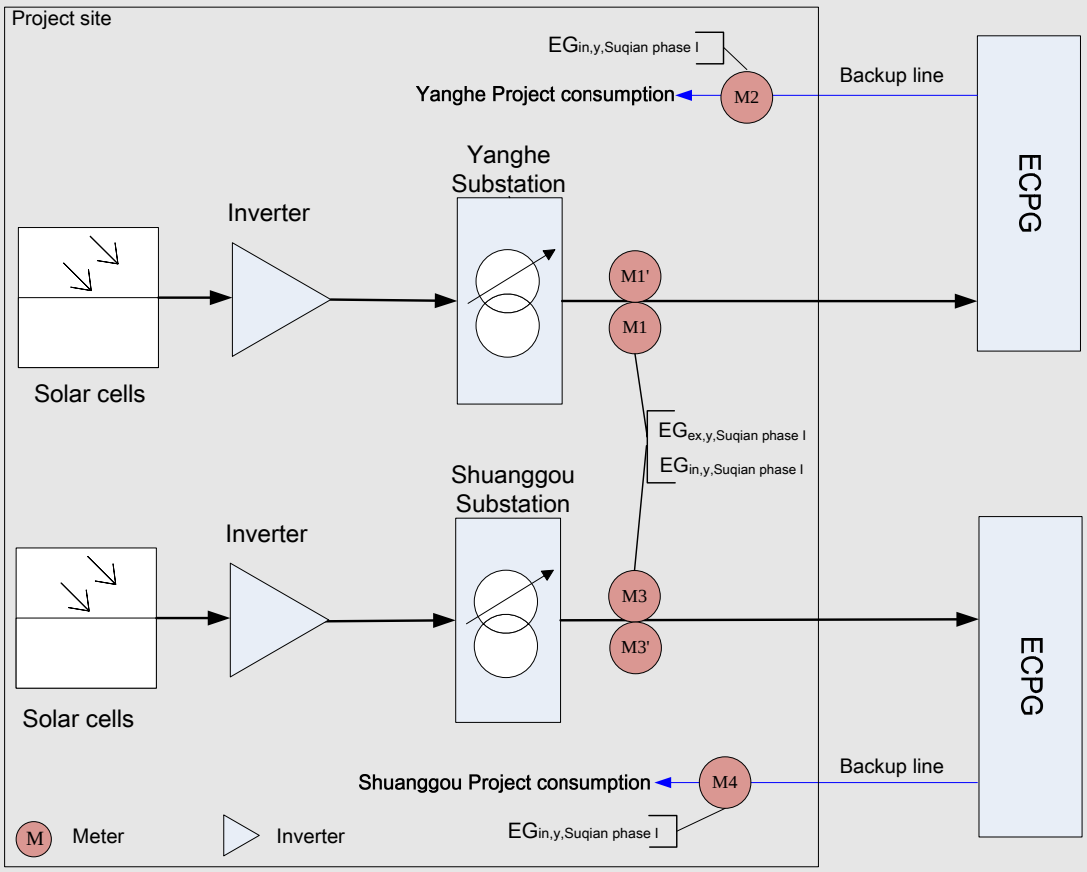

Figure C-2 Monitoring diagram of Suqian Phase I Project

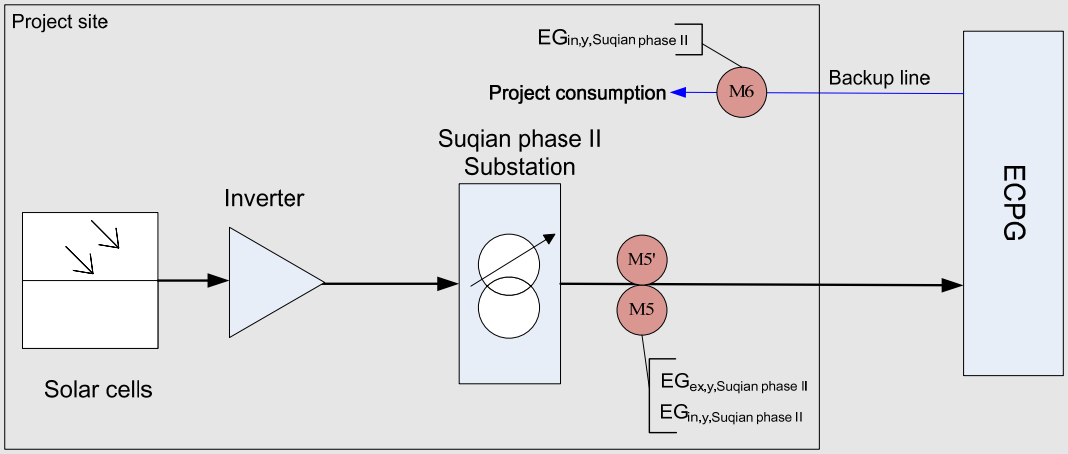

Figure C-3 Monitoring diagram of Suqian Phase II Project

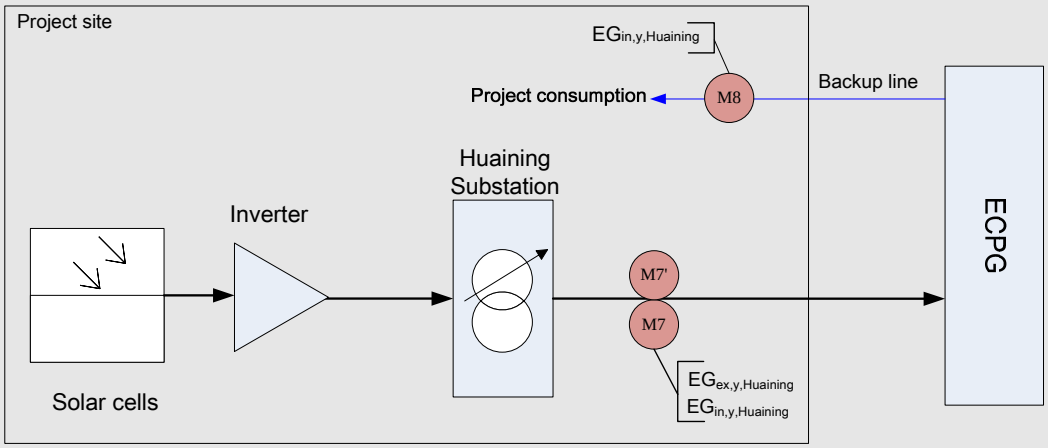

Figure C-4 Monitoring diagram of Huaining Project

For Suqian Phase I Project, the electricity exported by the project ($EG_{ex,y,Suqian\ phase\ I}$) are measured by the bidirectional electricity meter M1 and M3, which is installed at the gate way of the project site. The electricity imported from the grid ($EG_{in,y,Suqian\ phase\ I}$) are measured by the bidirectional electricity meter M1 and M3 installed at gate way of the project site, and the unidirectional electricity M2 and M4 installed at the project site. The M1and M3 are the main meters, and the check meters M1' and M3' are also installed at the gate way of the project site. The net electricity used for ERs calculation of Suqian phase I project could be calculated as the difference between $EG_{ex,y,Suqian\ phase\ I}$ and $EG_{in,y,Suqian\ phase\ I}$.

For Suqian Phase II Project, the electricity exported by the project ($EG_{ex,y,Suqian\ phase\ II}$) is measured by the bidirectional electricity meter M5, which is installed at the gate way of the project site. The electricity imported from the grid ($EG_{in,y,Suqian\ phase\ II}$) are measured by the bidirectional electricity meter M5 installed at gate way of the project site, and the unidirectional electricity M6 installed at the project site. The M5 is the main meter, and the check meter M5' is also installed at the gate way of the project site. The net electricity used for ERs calculation of Suqian phase II project could be calculated as the difference between $EG_{ex,y,Suqian\ phase\ II}$ and $EG_{in,y,Suqian\ phase\ II}$.

For Huaining Project, the electricity exported by the project ($EG_{ex,y,Huaining}$) is measured by the bidirectional electricity meter M7, which is installed at the gate way of the project site. The electricity imported from the grid ($EG_{in,y,Huaining}$) are measured by the bidirectional electricity meter M7 installed at gate way of the project site, and the unidirectional electricity M8 installed at the project site. The M7 is the main meter, and the check meter M7' is also installed at the gate way of the project site. The net electricity used for ERs calculation of Huaining project could be calculated as the difference between $EG_{ex,y,Huaining}$ and $EG_{in,y,Huaining}$.

3. Data record and management system

The readings of the meters start from the first day of every month and end at 24:00 of the last day of every month are recorded.

Specific staff was appointed to take the overall responsibility for keeping all the data collected as part of monitoring and kept for two years after the end of the last crediting period.

Electronic data written data and documents, including records for cross-checking of data were regularly copied and kept at least for two years after the end of the last crediting period.

4. Quality assurance and quality control (QA/QC)

The electricity supplied and consumed by the Project shall be cross-checked with records for sold/purchased electricity (e.g. invoices/receipts).

Problem occurred in monitoring and measurement process will be recorded and reported to the Group General Manager.

Should the reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the net generation output shall be determined as follows:

a) Reading the data monitored by check meter;

b) If the reading of the check meter is still inaccurate, the project owner and the grid company shall jointly prepare a reasonable and conservative estimate of the correct reading based on the plant consumption rate, and provide sufficient evidence that this estimation is reasonable and conservative when DOE undertakes verification.

The Main electricity meter M1 (See Figure C-2 above) was replaced on 30/11/2012 as required by the grid company in order for the unified management.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

(Copy this table for each piece of data and parameter.)

Data / Parameter:	$EF_{CO2,grid,y}$
Unit:	tCO_2e/MWh
Description:	CO_2 Emission factor of the grid
Source of data:	Calculated base on Chinese DNA's publication
Value(s) applied):	0.81415
Purpose of data:	Calculation of baseline emissions
Additional comment:	It is fixed during the first crediting period and should be updated in the second crediting period.

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter:	$EG_{facility,y,Suqian\ phase\ I}$
Unit:	MWh
Description:	Quantity of net electricity supplied to the grid by Suqian phase I project in year y
Measured/ Calculated / Default:	Calculated
Source of data:	Calculated based on the measured parameters of $EG_{ex,y,Suqian\ phase\ I}$ and $EG_{in,y,Suqian\ phase\ I}$
Value(s) of monitored parameter:	2,106.699
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method	The parameter will be calculated based on the following

(if applicable):	measured parameters of $EG_{ex,y,Suqian\ phase\ I}$ and $EG_{in,y,Suqian\ phase\ I}$, i.e. $EG_{facility,\ y,Suqian\ phase\ I} = \left(EG_{ex,y,Suqian\ phase\ I} - EG_{in,y,Suqian\ phase\ I}\right)$
QA/QC procedures:	Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{ex,y,Suqian\ phase\ I}$
Unit:	MWh
Description:	Electricity supplied to the grid by Suqian phase I project in year *y*
Measured/ Calculated / Default:	Measured
Source of data:	Measured by electricity meter, and calculated as the sum of the measurement results of electricity meter M1 and M3
Value(s) of monitored parameter:	2,146.611
Monitoring equipment:	

Meter M1 (after replacement)	Electricity meter
Type	DTZ719
Accuracy class	0.5S
Serial number	0300763007
Calibration frequency	Annually
Calibration validity	Calibrated on 16/10/2012 valid to 15/10/2013

Note: The Main electricity meter M1 was replaced on 30/11/2012 as required by the grid company in order for the unified management. The accuracy of the new meter M1 changed to be 0.5S, and this is still satisfied with the requirement of the MP in registered PDD. The equipment information of the original meter is shown as following:

Meter M1 (original meter)	Electricity meter
Type	ZMD402CT44.0457
Accuracy class	0.2S
Serial number	95411219
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013

Meter M1' (check meter of M1)	Electricity meter
Type	ZMD405CR44.0007
Accuracy class	0.5S
Serial number	96336841
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.

	Meter M3 | Electricity meter Type | ZMD402CT44.0457 Accuracy class | 0.2S Serial number | 97551690 Calibration frequency | Annually Calibration validity | Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014. **Meter M3' (check meter of M3)** | Electricity meter Type | ZMD402CT44.0457 Accuracy class | 0.2S Serial number | 96213047 Calibration frequency | Annually Calibration validity | Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.
Measuring/ Reading/ Recording frequency:	Continuously measured and monthly recorded respectively.
Calculation method (if applicable):	N/A
QA/QC procedures:	The electricity meter M1, M1', M3 and M3' are calibrated annually according to the related national standard. Cross check measurement results with records for sold electricity.
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{in,y,Suqian\ phase\ I}$
Unit:	MWh
Description:	Electricity consumed by Suqian phase I project importing from the grid in year y
Measured/ Calculated / Default:	Measured
Source of data:	Measured by electricity meter(s), and calculated as the sum of the measurement results of electricity meter M1, M2, M3 and M4
Value(s) of monitored parameter:	39.912

Monitoring equipment:

Meter M1	Electricity meter
Type	DTZ719
Accuracy class	0.5S
Serial number	0300763007
Calibration frequency	Annually
Calibration validity	Calibrated on 16/10/2012 valid to 15/10/2013

Note: The Main electricity meter M1 was replaced on 30/11/2012, as required by the grid company in order for the unified management. The accuracy of the new meter M1 changed to be 0.5S, and this is still satisfied with the requirement of the MP in registered PDD. The equipment information of the original meter is shown as following:

Meter M1 (original meter)	Electricity meter
Type	ZMD402CT44.0457
Accuracy class	0.2S
Serial number	95411219
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013

Meter M1' (check meter of M1)	Electricity meter
Type	ZMD405CR44.0007
Accuracy class	0.5S
Serial number	96336841
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.

Meter M2	Electricity meter
Type	DTSD341
Accuracy class	0.5S
Serial number	1011048976000002
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.

	Meter M3 / Electricity meter Type / ZMD402CT44.0457 Accuracy class / 0.2S Serial number / 97551690 Calibration frequency / Annually Calibration validity / Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014. **Meter M3'（check meter of M3）** / Electricity meter Type / ZMD402CT44.0457 Accuracy class / 0.2S Serial number / 96213047 Calibration frequency / Annually Calibration validity / Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014. **Meter M4** / Electricity meter Type / DTSD341 Accuracy class / 0.5S Serial number / 1011048976000001 Calibration frequency / Annually Calibration validity / Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.
Measuring/ Reading/ Recording frequency:	Continuously measured and monthly recorded respectively.
Calculation method (if applicable):	N/A
QA/QC procedures:	The electricity meter M1, M1', M2, M3, M3' and M4 are calibrated annually according to the related national standard. Cross check measurement results with records for purchased electricity.
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{facility,y,Suqian\ phase\ II}$
Unit:	MWh
Description:	Quantity of net electricity supplied to the grid by Suqian phase II project in year y
Measured/ Calculated / Default:	Calculated

Source of data:	Calculated based on the measured parameters of $EG_{ex,y,Suqian\ phase\ II}$ and $EG_{in,y,Suqian\ phase\ II}$
Value(s) of monitored parameter:	5,518.206
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	The parameter will be calculated based on the following measured parameters of $EG_{ex,y,Suqian\ phase\ II}$ and $EG_{in,y,Suqian\ phase\ II}$, i.e. $EG_{facility,\ y,Suqian\ phase\ II} = \left(EG_{ex,y,Suqian\ phase\ II} - EG_{in,y,Suqian\ phase\ II}\right)$
QA/QC procedures:	Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{ex,y,Suqian\ phase\ II}$
Unit:	MWh
Description:	Electricity supplied to the grid by Suqian phase II project in year *y*
Measured/ Calculated / Default:	Measured
Source of data:	Measured by electricity meter
Value(s) of monitored parameter:	5,675.800
Monitoring equipment:	**Meter M5** — Electricity meter; Type: DTZ876; Accuracy class: 0.2S; Serial number: 1400341751; Calibration frequency: Annually; Calibration validity: Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014. **Meter M5' (check meter of M5)** — Electricity meter; Type: DTZ876; Accuracy class: 0.2S; Serial number: 1400341777; Calibration frequency: Annually; Calibration validity: Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.
Measuring/	Continuously measured and monthly recorded respectively.

Reading/ Recording frequency:	
Calculation method (if applicable):	N/A
QA/QC procedures:	The electricity meter M5 and M5' are calibrated annually according to the related national standard. Cross check measurement results with records for sold electricity.
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{in,y,Suqian\ phase\ II}$
Unit:	MWh
Description:	Electricity consumed by Suqian phase II project importing from the grid in year y
Measured/ Calculated / Default:	Measured
Source of data:	Measured by electricity meter(s), and calculated as the sum of the measurement results of electricity meter M5 and M6
Value(s) of monitored parameter:	157.595
Monitoring equipment:	

Meter M5	Electricity meter
Type	DTZ876
Accuracy class	0.2S
Serial number	1400341751
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.

Meter M5' **(check meter of M5)**	Electricity meter
Type	DTZ876
Accuracy class	0.2S
Serial number	1400341777
Calibration frequency	Annually
Calibration validity	Calibrated on 20/03/2012 valid to 19/03/2013; Calibrated on 18/03/2013 valid to 17/03/2014.

	Meter M6	Electricity meter
	Type	DTZY532-A
	Accuracy class	1.0
	Serial number	1400205838
	Calibration frequency	Annually
	Calibration validity	Calibrated on 22/09/2011 valid to 21/09/2012; Calibrated on 20/09/2012 valid to 19/09/2013.
Measuring/ Reading/ Recording frequency:	Continuously measured and monthly recorded respectively.	
Calculation method (if applicable):	N/A	
QA/QC procedures:	The electricity meter M5, M6 and M5' are calibrated annually according to the related national standard. Cross check measurement results with records for purchased electricity.	
Purpose of data:	Calculation of baseline emissions	
Additional comment:	-	

Data / Parameter:	$EG_{facility,y,Huaining}$
Unit:	MWh
Description:	Quantity of net electricity supplied to the grid by Huaining project in year y
Measured/ Calculated / Default:	Calculated
Source of data:	Calculated based on the measured parameters of $EG_{ex,y,Huaining}$ and $EG_{in,y,Huaining}$
Value(s) of monitored parameter:	2,069.642
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	The parameter will be calculated based on the following measured parameters of $EG_{ex,y,Huaining}$ and $EG_{in,y,Huaining}$, i.e. $EG_{facility,y,Huaining} = (EG_{ex,y,Huaining} - EG_{in,y,Huaining})$
QA/QC procedures:	Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{ex,y,Huaining}$
Unit:	MWh
Description:	Electricity supplied to the grid by Huaining project in year *y*
Measured/ Calculated /	Measured

Default:	
Source of data:	Measured by electricity meter
Value(s) of monitored parameter:	2,140.428
Monitoring equipment:	**Meter M7** / Electricity meter Type: AINRTAL/3×100V、3×1(10)A Accuracy class: 0.2S Serial number: 02081993 Calibration frequency: Annually Calibration validity: Calibrated on 27/01/2012 valid to 26/01/2013; Calibrated on 14/01/2013 valid to 13/01/2014. **Meter M7'** / Electricity meter Type: AINRTAL/3×100V、3×1(10)A Accuracy class: 0.2S Serial number: 02082012 Calibration frequency: Annually Calibration validity: Calibrated on 27/01/2012 valid to 26/01/2013; Calibrated on 14/01/2013 valid to 13/01/2014.
Measuring/ Reading/ Recording frequency:	Continuously measured and monthly recorded respectively.
Calculation method (if applicable):	N/A
QA/QC procedures:	The electricity meter M7 and M7' are calibrated annually according to the related national standard. Cross check measurement results with records for sold electricity.
Purpose of data:	Calculation of baseline emissions
Additional comment:	-

Data / Parameter:	$EG_{in,y,Huaining}$
Unit:	MWh
Description:	Electricity consumed by Huaining project importing from the grid in year y
Measured/ Calculated / Default:	Measured
Source of data:	Measured by electricity meter(s), and calculated as the sum of the measurement results of electricity meter M7and M8
Value(s) of	70.787

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<tr><td>monitored parameter:</td><td></td></tr>
<tr><td>Monitoring equipment:</td><td>
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<tr><td>Meter M7</td><td>Electricity meter</td></tr>
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<tr><td>Calibration frequency</td><td>Annually</td></tr>
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Calibrated on 14/01/2013 valid to 13/01/2014.</td></tr>
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(check meter of M7)</td><td>Electricity meter</td></tr>
<tr><td>Type</td><td>AINRTAL/3×100V、3×1(10)A</td></tr>
<tr><td>Accuracy class</td><td>0.2S</td></tr>
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<tr><td>Calibration frequency</td><td>Annually</td></tr>
<tr><td>Calibration validity</td><td>Calibrated on 27/01/2012 valid to 26/01/2013;

Calibrated on 14/01/2013 valid to 13/01/2014.</td></tr>
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<table>
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<tr><td>Accuracy class</td><td>1.0</td></tr>
<tr><td>Serial number</td><td>1012050835000020</td></tr>
<tr><td>Calibration frequency</td><td>Annually</td></tr>
<tr><td>Calibration validity</td><td>Calibrated on 21/10/2011 valid to 20/10/2012;

Calibrated on 19/10/2012 valid to 18/10/2013.</td></tr>
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<tr><td>Measuring/ Reading/ Recording frequency:</td><td>Continuously measured and monthly recorded respectively.</td></tr>
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<tr><td>QA/QC procedures:</td><td>The electricity meter M7, M7’ and M8 are calibrated annually according to the related national standard. Cross check measurement results with records for purchased electricity.</td></tr>
<tr><td>Purpose of data:</td><td>Calculation of baseline emissions</td></tr>
<tr><td>Additional comment:</td><td>-</td></tr>
</table>

D.3. Implementation of sampling plan

>>

N/A

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

>>

The baseline emissions calculated as follows:

$$BE_y = EG_{BL,y} \times EF_{CO_2,grid,y} \quad (1)$$

Where:

BE_y	=	Baseline emissions in year y (tCO_2)
$EG_{BL,y}$	=	Quantity of net electricity supplied to the grid as a result of the implementation the CDM project activity in year y (MWh);
$EF_{CO2,grid,y}$	=	CO_2 Emission Factor of the grid in year y.

$$\begin{aligned} EG_{BL,y} &= EG_{facility,y,\text{Suqian phase I}} + EG_{facility,y,\text{Suqian phase II}} + EG_{facility,y,\text{Huaining}} \\ &= \left(\mathrm{EG}_{\mathrm{ex,y,Suqian\ phase\ I}} - \mathrm{EG}_{\mathrm{in,y,Suqian\ phase\ I}}\right) + \left(\mathrm{EG}_{\mathrm{ex,y,Suqian\ phase\ II}} - \mathrm{EG}_{\mathrm{in,y,Suqian\ phase\ II}}\right) \\ &+ \left(\mathrm{EG}_{\mathrm{ex,y,Huaining}} - \mathrm{EG}_{\mathrm{in,y,Huaining}}\right) \end{aligned} \quad (2)$$

Where:

$EG_{facility,y,Suqian\ phase\ I}$	=	Quantity of net electricity supplied to the grid by Suqian Phase I Project in year *y* (MWh);
$EG_{facility,y,Suqian\ phase\ II}$	=	Quantity of net electricity supplied to the grid by Suqian Phase II Project in year *y* (MWh);
$EG_{facility,y,\ Huaining}$	=	Quantity of net electricity supplied to the grid by Huaining Project in year *y* (MWh);
$EG_{ex,y,Suqian\ phase\ I}$	=	Electricity supplied to the grid by Suqian phase I project in year *y* (MWh);
$EG_{in,y,Suqian\ phase\ I}$	=	Electricity consumed by Suqian phase I project importing from the grid in year *y* (MWh);
$EG_{ex,y,Suqian\ phase\ II}$	=	Electricity supplied to the grid by Suqian phase II project in year *y* (MWh);
$EG_{in,y,Suqian\ phase\ II}$	=	Electricity consumed by Suqian phase II project importing from the grid in year *y* (MWh).
$EG_{ex,y,Huaining}$	=	Electricity supplied to the grid by Huaining project in year *y* (MWh);
$EG_{in,y,Huaining}$	=	Electricity consumed by Huaining project importing from the grid in year *y* (MWh).

The monthly electricity data of Suqian phase I project are listed in Table E-1 as following:

Table E-1 Net electricity supplied by Suqian phase I Project

Period	$EG_{ex,y,Suqian\ phase\ I}$ (MWh)	$EG_{in,y,Suqian\ phase\ I}$ (MWh)	$EG_{facility,y,Suqian\ phase\ I}$ (MWh)
01/04/2012-30/04/2012	209.657	2.850	206.807

01/05/2012-31/05/2012	236.205	3.329	232.876
01/06/2012-30/06/2012	167.443	3.348	164.095
01/07/2012-31/07/2012	203.589	3.722	199.867
01/08/2012-31/08/2012	189.629	3.783	185.846
01/09/2012-30/09/2012	207.737	3.684	204.053
01/10/2012-31/10/2012	177.903	3.486	174.417
01/11/2012-30/11/2012	152.402	3.238	149.164
01/12/2012-31/12/2012	116.906	3.436	113.470
01/01/2013-31/01/2013	150.032	3.280	146.752
01/02/2013-28/02/2013	121.666	2.894	118.772
01/03/2013-31/03/2013	213.442	2.862	210.580
Total	2146.611	39.912	2,106.699

The monthly electricity data of Suqian phase II project are listed in Table E-2 as following:

Table E-2 Net electricity supplied by Suqian phase II Project

Period	$EG_{ex,y,Suqian\ phase\ II}$ (MWh)	$EG_{in,y,Suqian\ phase\ II}$ (MWh)	$EG_{facility,y,Suqian\ phase\ II}$ (MWh)
01/04/2012-30/04/2012	407.300	10.107	397.193
01/05/2012-31/05/2012	560.800	10.640	550.160
01/06/2012-30/06/2012	424.700	14.443	410.257
01/07/2012-31/07/2012	511.200	12.428	498.772
01/08/2012-31/08/2012	463.200	13.592	449.608
01/09/2012-30/09/2012	556.400	14.784	541.616
01/10/2012-31/10/2012	434.200	13.632	420.568
01/11/2012-30/11/2012	440.300	12.829	427.471
01/12/2012-31/12/2012	320.300	14.323	305.977
01/01/2013-31/01/2013	415.800	14.830	400.970
01/02/2013-28/02/2013	388.900	13.369	375.531
01/03/2013-31/03/2013	752.700	12.617	740.083
Total	5,675.800	157.595	5,518.206

The monthly electricity data of Huaining project are listed in Table E-3 as following:

Table E-3 Net electricity supplied by Huaining Project

Period	$EG_{ex,y,Huaining}$	$EG_{in,y,Huaining}$	$EG_{facility,y,Huaining}$

	(MWh)	(MWh)	(MWh)
01/04/2012-30/04/2012	193.569	5.767	187.802
01/05/2012-31/05/2012	216.072	5.848	210.224
01/06/2012-30/06/2012	204.441	7.070	197.371
01/07/2012-31/07/2012	281.064	8.923	272.141
01/08/2012-31/08/2012	216.357	7.354	209.003
01/09/2012-30/09/2012	216.354	5.969	210.385
01/10/2012-31/10/2012	182.283	5.184	177.099
01/11/2012-30/11/2012	149.583	5.101	144.482
01/12/2012-31/12/2012	103.350	5.870	97.480
01/01/2013-31/01/2013	108.522	5.836	102.686
01/02/2013-28/02/2013	89.682	4.250	85.432
01/03/2013-31/03/2013	179.151	3.615	175.536
Total	2,140.428	70.787	2,069.642

The baseline emissions of the bundled project are listed in Table E-4 as following:

Table E-4 Baseline emission of the bundled project

Period	$EG_{BL,y}$ (MWh)	$EF_{CO2,grid,y}$ (tCO_2e/MWh)	BE_y (tCO_2e)
01/04/2012-30/04/2012	791.802	0.81415	644.645
01/05/2012-31/05/2012	993.261	0.81415	808.663
01/06/2012-30/06/2012	771.723	0.81415	628.298
01/07/2012-31/07/2012	970.780	0.81415	790.360
01/08/2012-31/08/2012	844.457	0.81415	687.514
01/09/2012-30/09/2012	956.054	0.81415	778.371
01/10/2012-31/10/2012	772.084	0.81415	628.592
01/11/2012-30/11/2012	721.117	0.81415	587.098
01/12/2012-31/12/2012	516.927	0.81415	420.856
01/01/2013-31/01/2013	650.409	0.81415	529.530
01/02/2013-28/02/2013	579.735	0.81415	471.991
01/03/2013-31/03/2013	1,126.198	0.81415	916.894
Total	9,694.546	-	7,892

E.2. Calculation of project emissions or actual net GHG removals by sinks

>>

According to AMS-I.D. (version 17.0) and the registered PDD, the project emission of the bundled project is zero.

E.3. Calculation of leakage

>>

According to AMS-I.D. (Version 17.0), no leakage is need to be considered.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (t CO_2e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO_2e)
Total	7,892	0	0	7,892

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	9,033	7,892

E.6. Remarks on difference from estimated value in registered PDD

>>

For Suqian Phase I Project, the actual emission reductions achieved is 1,715tCO_2e in this monitoring period, which is slightly higher than the estimated emission reductions of 1,603tCO_2e in the registered PDD. This is because the generating capacity of solar project will be decreased year by year, and the generating capacity used for ERs calculation in the registered PDD is the average generation value of 25 year. As described in footnote 11 of the registered PDD, the generating capacity of Suqian phase I project is 2,432.4MWh in the first year, and it will be decreased to 1,945.9MWh in the 25th year from FSR, the decrease rate will be 20% during 25 years, i.e. 0.93% annually. Then the generating capacity of Suqian phase I project in this monitoring period is calculated as 2404.1MWh[3] (=2432.4*(1-0.93%)^1/12*9+2432.4*(1-0.93%)^2/12*3), and the electricity supplied by the project is calculated as 2283.9MWh with the ex-ante self-used rate 5%. The actual electricity supplied by the project in this monitoring period is 2,147MWh, which is lower than the estimation. Therefore, in the first few years, the slightly higher variation than the estimated value in the registered PDD is reasonable and acceptable.

[3] Suqian Phase I project was commissioned on 06/12/2010, so the first operation year is up to 05/12/2011, the second and the third operation year is up to 05/12/2012 and 05/12/2013 respectively. According to the FSR, the designed power generation of first year is 2,432.4MWh, then would be decrease to 2,409.8MWh (= 2,432.4*(1-0.93%)) for the second year, and to 2,387.4MWh (= 2,432.4*(1-0.93%)^2) for the third year.

For Suqian Phase II Project, the actual emission reductions achieved is 4,492tCO_2e in this monitoring period, which is lower than the estimated emission reductions of 5,687tCO_2e in the registered PDD.

For Huaining Project, the actual emission reductions achieved is 1,685tCO_2e in this monitoring period, which is lower than the estimated emission reductions of 1,743tCO_2e in the registered PDD.

The actual emission reductions achieved by the bundled project during this monitoring period are lower than the estimated emission reductions in the registered PDD.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO_2e)	5,974	1,918

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Document information

Version	*Date*	*Description*
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 anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.

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