NINGXIA ANGLI LINGWU PHOTOVOLTAIC GRID CONNECTED POWER PLANT PROJECT

Document Prepared by Climate Bridge (Shanghai) Ltd.

Project Title	**Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project**
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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project (hereafter simplified as “the Project”) is a newly built grid-connected photovoltaic power plant with installed capacity of 39MWp (39.3397MWp precisely), which is located at Baitugang Country, Lingwu City, Ningxia Hui Autonomous Region. The Project is developed and operated by Datang Angli (Lingwu) New Energy Co., Ltd. (hereafter simplified as “the project owner”).

During this monitoring period from 01-12-2018 to 31-03-2021, the total GHG emission reductions are 107,929tCO_2.

The purpose of the Project:

(a) The scenario existing prior to the implementation of the Project is that the electricity requirement is satisfied by Ningxia Power Grid which is an integral part of Northwest China Power Grid (hereafter simplified as “NWPG”).

(b) The project will generate electricity by using renewable solar photovoltaic (PV) power to the NWPG and replacing equivalent electricity generated by fossil fuel fired power plants connected to the NWPG. The installed capacity of the Project is 39MWp (15,792 pieces of solar modules with 190W of unit capacity, 150,264 pieces of solar modules with 235W of unit capacity and 4,280 pieces of solar modules with 240W of unit capacity), and therefore reducing Greenhouse Gas Emissions. The expected annual grid-in electricity is 54,000MWh.

How the project activity reduces GHG emissions:

The annual grid-in electricity generated by the Project is about 54,000MWh.The Project will achieve greenhouse gas (GHG) emission reductions by displacing equivalent electricity supplied by NWPG, which is predominated by fossil fuel-fired power plants. The estimated annual emission reductions are 48,402 t CO_2e.

The relevant implementation date:

The project started construction on 26-09-2011, and the first date of commission was on 28-12-2011. The expected operation period is 25 years as stated in the registered VCS PD Version 02 dated 09-10-2013 and registered CDM PDD Version 2 dated 19-10-2012. The first renewable crediting period of the project updated from 28-12-2011~30-11-2012 to 28-12-2011~27-12-2021. (Detail refer to section 1.6 of this report)

1.2 Sectoral Scope and Project Type

Sectoral scope: 1. Energy industries (renewable/non-renewable sources).

Project type: Solar-power generation project.

The project is not a grouped project.

1.3 Project Proponent

Organization name	**Datang Angli (Lingwu) New Energy Co.Ltd (Project Owner)**
Contact person	Feng Bin
Title	Project manager
Address	Jinyuan Building, Beijing East Road, Xingqing District, Yinchuan City, Ningxia Hui Autonomous Region
Telephone	+86-2123019950
Email	3542346576@qq.com

1.4 Other Entities Involved in the Project

Organization name	**Climate Bridge (Shanghai) Ltd.**
Role in the Project	Consultancy
Contact person	Zhiwen Gao
Title	General Manager
Address	Block B, Level 24, Jiangong Mansion, 33 Fushan Road, Pudong New Area, Shanghai, China 200120
Telephone	+86-2162462036
Email	gao.zhiwen@climatebridge.com; projects@climatebridge.com

1.5 Project Start Date

28-12-2011 (commissioning start date)

1.6 Project Crediting Period

There is a deviation for the crediting period. As per VCS version 4, registered projects and projects that complete validation on or before 19-03-2020 remain eligible to apply the crediting period requirements under VCS Version 3. Thus, it remains eligible to apply the crediting period requirements under VCS Version 3, the project crediting period is applicable to a maximum of 10 years which may be renewed at most two times. Considering the VCS start date of the project is 28-12-2011, the original eligible VCS crediting period of the project

was 28-12-2011 to 27-12-2041 (10*3 renewable). But the project is also registered as a CDM project (CDM ref. 8251) and the crediting period under CDM is 21 years (7*3 renewable), therefore the total length of VCS crediting period should be no more than 21 years which is from 28-12-2011 to 27-12-2032, and the project is not eligible for VCU issuance beyond 27-12-2032.

Therefore, the first crediting period is changed from 28-12-2011 ~ 30-11-2012 to 28-12-2011~27-12-2021.

1.7 Project Location

The Project is located at Baitugang Country, Lingwu City, Ningxia Hui Autonomous Region, the site inflection point coordinates of the project are as below:

	Longitude	Latitude
A	106°21′49.52″E	37°48′24.42″N
B	106°22′28.03″E	37°48′03.59″N
C	106°22′17.99″E	37°47′28.31″N
D	106°21′25.18″E	37°47′50.96″N

The location of the Project is shown in the map of Figure 1.

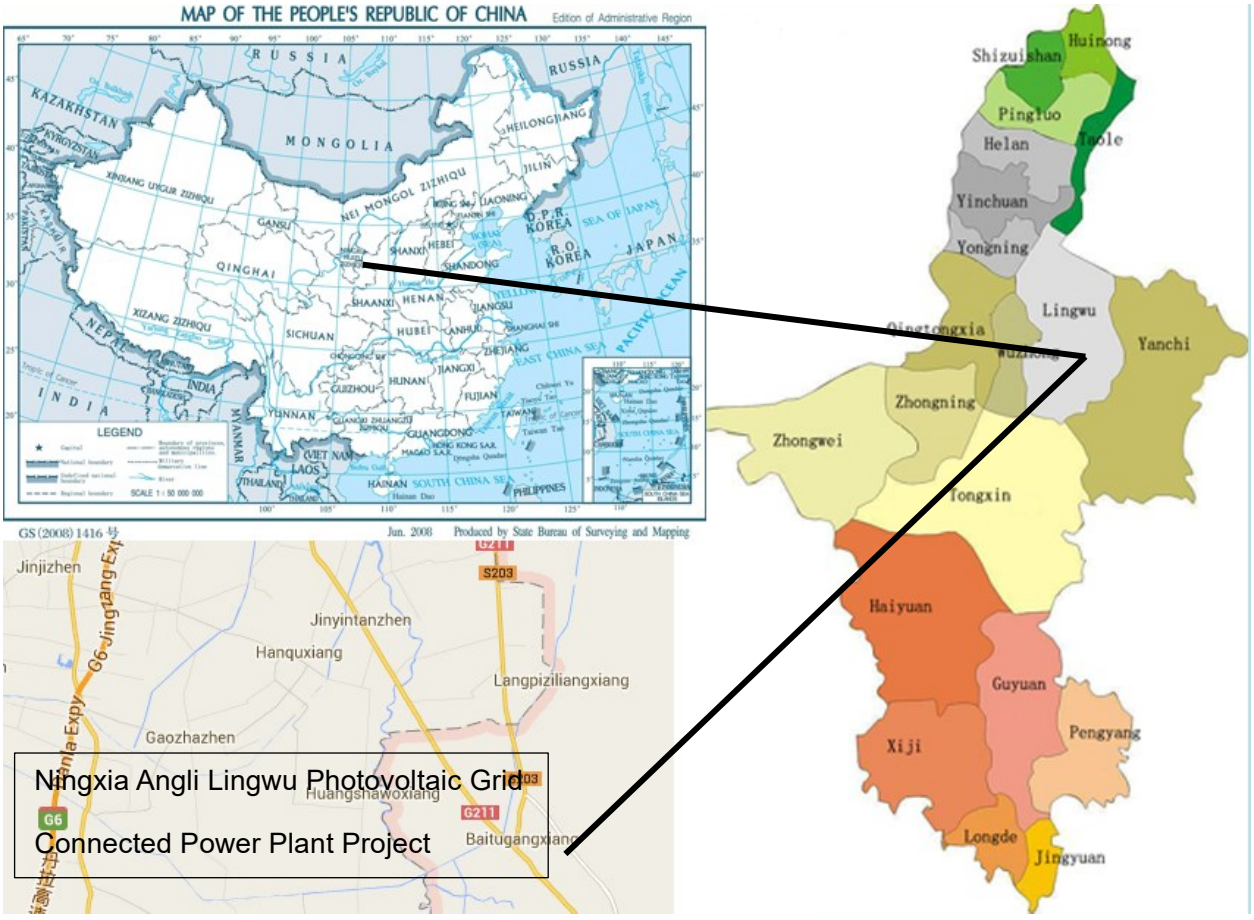

Figure 1 : The location of the Project

1.8 Title and Reference of Methodology

The methodology applied to the project is as follows:

Methodology

ACM0002 (version 13.0.0) Consolidated baseline methodology for grid-connected electricity generation from renewable sources is used in the Project.

https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

Other tool that will be used for the Project activity:

Tool to calculate the emission factor for an electricity system (version 02.2.1)

http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf

1.9 Participation under other GHG Programs

The project has been registered as CDM project and the registration number is 8251, the first CDM crediting period is form 01-12-2012 to 30-11-2019, and the crediting period has been successfully renewed on 06-12-2019 with the 2nd CDM crediting period from 01-12-2019 to 30-11-2026. None of the GHG emission reduction has been issued during this period from 01-12-2012 to 31-03-2021.

1.10 Other Forms of Credit

The GHG emission reductions generated by the project from 01-12-2012 to 30-11-2018 will not be used for compliance with emission trading programs or to meet binding limits on GHG emissions.

All credits from 01-12-2012 to 30-11-2018 will be claimed under VCS program as VCUs for the project to avoid double counting.

The project hasn't sought or received another form of environmental credits.

1.11 Sustainable Development

The Project promotes local sustainable development through the following aspects:

- The project activity will displace the power generation of fossil fuel power plants, reducing CO_2, SO_x, and NO_x emissions significantly, thus mitigating the air pollution and its adverse impacts on human health.
- Improvement of the fossil fuel dominated fuel mix of the electricity generation in the power grid by providing clean and renewable energy source and help to energy supply security.

- Promote application and diffusion of the innovative/creative solar PV technology in China through the demonstrative practice of the project activity.
- Create employment opportunities for the local community during the construction and operation period.

2 SAFEGUARDS

2.1 No Net Harm

There are no negative environmental and/or socio-economic impacts due to the project. In fact, the project as a clean renewable energy project can reduce greenhouse gas emissions and the environmental pollution caused by fossil fuels consumption. Meanwhile, the implementation of the project will improve local socio-economic development through creating career opportunities and paying taxes.

2.2 Local Stakeholder Consultation

According to the area impacted by the Project, local villagers around the project site are identified as the stakeholders of the Project.

In Sep. 2011, the staff from the project owner carried out a survey of the local villagers and residents in the area. 1 page questionnaire was designed to fill in and has the following sections:

- Project introduction
- Respondent's basic information and education level
- Questions on:

1. Do they agree with the development and construction of the project?

2. Will the project have a negative impact on your environment of living, studying and working?

3. Will the project have a negative impact on the environment, such as noise, water and electromagnetism?

4. Will the project have a negative impact on the ecosystem?

5. Do you think the Project will have promotion in local economic development?

6. Do you have some suggestion about the project?

The results of the surveyed are as follows:

Following is a summary of the local survey. The survey forms are available from the project owner.

The questionnaires were sent to 40 households and the survey had a 100% response rate. The result of the survey indicated the support to the project.

The statistic of opinion:

- Among the respondents, 30 people are male, and 10 people are female.

- Among the respondents, 9 people are between 21 and 30, 30 people are between 31 and 40, 1 people are between 41 and 50.
- Among the respondents, 10 people finished the education of primary school, 24 people finished the education of junior high school, 6 people finished the education of senior high school/technical secondary school.
- Among the respondents, 27 people are farmers, 5 people are workers, 8 people have other occupations.

It can be seen that respondents are representative of the public opinions in terms of their gender, age and educational levels. Therefore, it can be considered that responses to the survey have comprehensively reflected the attitudes towards the Project of the villagers possibly affected by the Project.

- 100% of respondents agreed with the development of the Project.
- 95% respondents believed that the project construction will not do harm to the environment, 5% did not respond.
- 97.5% believed that the project construction will do no harm to the ecosystem, 2.5% did not respond.
- 97.5% believed that the project construction will have no impact to the environment of living, studying, and working, 2.5% did not respond.
- 100% believed that the project construction will have positive impact on local economic development.
- 100% had no further suggestion.

Conclusions from the survey:

The survey shows that the Project has strong local support among the local people. They all believe the Project will promote the local economic development and agree the project construction.

According to all the comments and advice received, all the shareholders support the construction of the proposed project. The local residents believe if the project owner strictly follow the Environmental Impact Assessment Report, the limited impacts caused by the proposed project will be negligible.

Local Stakeholder Consultation during the project implementation stage:

Communications with local stakeholders are being carried out every three years. Key implementation schedules or changes of the project will be communicated to the local authority, who will inform the neighbourhood committee and the local resident, the comments and suggestions from residents will be collected by the local authority meanwhile. And the local government agencies and competent authorities will conduct spot checks on the implementation of the project from time to time and give suggestions on the involved

rectification problems. During this period, the project owner organized one communication with local stakeholders in December 2020. The communications went smoothly, there are no negative comments received for the project.

2.3 AFOLU-Specific Safeguards

This project is non-AFOLU project.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project started construction on 26-09-2011, and the first date of commission was on 28-12-2011. During this monitoring period, the project has a good running, smooth data transfer and grid connection, and no special events happened. No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

The project generates the electricity by using renewable solar photovoltaic (PV) power to the NWPG and replacing equivalent electricity generated by fossil fuel fired power plants connected to the NWPG. The installed capacity of the Project is 39MWp (15,792 pieces of solar modules with 190W of unit capacity, 150,264 pieces of solar modules with 235W of unit capacity and 4,280 pieces of solar modules with 240W of unit capacity).

The key technical parameters of the main equipment are shown as follows:

(1). Modules

Solar modules are the core component of the Project, whose function is to convert solar energy into electricity energy through direct current (DC). The project activity consists of 7.7% monocrystalline silicon cells and 92.3% polycrystalline silicon cells. The technical parameters of PV Modules are listed below:

Table 1. Key technical parameters of Monocrystalline Silicon Cell

Parameters	Unit	Value	Data Source	Data Source
PV Module Type		JAM5(L)-72-190	ATP-190	Technical Specification of Equipment Contract
Capacity	W	190	190	
Pieces		10560	5232	
Open circuit voltage (Voc)	V	44.87	44.5	
Max. power voltage (Vmp)	V	36.48	36.5	
Short circuit current (Isc)	A	5.54	5.69	
Max. power current (Imp)	A	5.21	5.20	
Maximum system voltage	V	1000	1000	
Lifetime	years	25	25	
Manufacturer		JA Solar	ATSUN	

Table 2. Key technical parameters of Polycrystalline Silicon Cell

Parameters	Unit	Value			Data Source
PV Module Type		JAP6-60-235	ATP-235	JAP6-60-240	Technical Specification of Equipment Contract
Capacity	W	235	235	240	
Pieces		117640	32624	4280	
Open circuit voltage (Voc)	V	37.34	37.5	37.45	
Max. power voltage (Vmp)	V	29.52	30.5	29.58	
Short circuit current (Isc)	A	8.40	8.70	8.50	
Max. power current (Imp)	A	7.96	7.70	9.10	
Maximum system voltage	V	1000	1000	1000	
Lifetime	Years	25	25	25	
Manufacturer		JA Solar	ATSUN	JA Solar	

(2). Inverters
Inverter is an electrical device that converts direct current (DC) to alternating current (AC). 78 sets of inverters with capacity 500KW will be installed in the proposed project. The parameters of inverter are listed below:

Table 3. Key technical parameters of Inverter

Parameters	Unit	Value	Data Source
Max. Input voltage range	V	800-900	Technical Specification of Equipment Contract
max. Input voltage range	A	1100-1200	
rated output voltage range	V	210-310	
Max Efficiency	%	≥98.0	
Cooling Mode		Air-cooled	
Lifetime	years	25	
Manufacturer		Sun Grow	

Domestic technology is employed by the proposed project and no technology transfer involved.

Three meters are used to monitoring the electricity delivered to NWPG. M1 is installed at the output of the on-site booster station of the project, M2 is installed at the same place of M1, M3 is installed at 10kV backup line. The measurement precision of the meters employed by the Project will be at least 0.5S.

3.2 Deviations

3.2.1 Methodology Deviations

N/A

3.2.2 Project Description Deviations

In the registered PD, the crediting period is described as from 28-12-2011 to 30-11-2012. A deviation is requested for the crediting period in the registered PD. The project is registered under VCS Standard Version 3 and completed validation before 19-03-2020. Thus, it remains eligible to apply the crediting period requirements under VCS Standard Version 3 which shall be a maximum of ten years and may be renewed at most twice, so the first renewable crediting period of the project should be updated from 28-12-2011~30-11-2012 to 28-12-2011~ 27-12-2021.

There was no project description deviation applied during the monitoring period.

3.3 Grouped Projects

The Project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	**$EF_{grid, CM, y}$**
Data unit	tCO_2/MWh
Description	Emission factor which is ex-anted according to the applied methodology
Source of data	2011 Baseline emission factors for regional power grids in China issued by the National Development and Reform Commission of the Government of China (China DNA)
Value applied	0.89635
Justification of choice of data or description of measurement methods and procedures applied	NWPG is selected as the project boundary for the Project.
Purpose of Data	Baseline emission calculations
Comments	-

4.2 Data and Parameters Monitored

Data / Parameter	**$EG_{PJ\ to\ grid, y}$**
Data unit	MWh
Description	Quantity of electricity supplied by the Project to the grid in year y
Source of data	Measured by meters (M1 or backup M2) installed at the output of the on site booster station
Description of measurement methods and procedures to be applied	Continuous measurement and at least monthly recording. The meter reading time is 24:00 at the last day of every month, and the settlement process would be finish at the same time.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	01-12-2018~31-12-2018: 3,257.00 2019: 51,082.00 2020: 55,010.96 01-01-2021~31-03-2021: 12,101.33
Monitoring equipment	Information of monitoring equipment as follow tables: Main meter / Backup meter

	<table><tr><td>Meter Type</td><td colspan="2">DSZ331</td></tr><tr><td>Accuracy class</td><td colspan="2">0.2s</td></tr><tr><td>Serial No.</td><td>0001468380</td><td>0001468381</td></tr><tr><td>Calibration frequency</td><td colspan="2">Annually</td></tr><tr><td>The last calibration date</td><td colspan="2">Validity</td></tr><tr><td>01-12-2018</td><td colspan="2">01-12-2018 to 30-11-2019</td></tr><tr><td>01-12-2019</td><td colspan="2">01-12-2019 to 30-11-2020</td></tr><tr><td>01-12-2020</td><td colspan="2">01-12-2020 to 30-11-2021</td></tr></table> Calibration was carried by Ningxia Electricity Measurement and Testing Center
QA/QC procedures to be applied	Measurement results should be cross-checked by records for sold electricity.
Purpose of the data	Baseline emission calculations
Calculation method	-
Comments	-

Data / Parameter	**$EG_{grid\ to\ PJ,\ y}$**
Data unit	MWh
Description	Quantity of electricity imported from the grid by the Project in year y
Source of data	Measured by meters (main meter M1, backup meter M2, and 10KV backup M3) installed at the output of the onsite booster station and meter installed at 10kV backup line
Description of measurement methods and procedures to be applied	Continuous measurement and at least monthly recording
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	<table><tr><td>01-12-2018~31-12-2018</td><td>22.80</td></tr><tr><td>2019</td><td>454.73</td></tr><tr><td>2020</td><td>423.29</td></tr><tr><td>01-01-2021~31-03-2021</td><td>125.65</td></tr></table>
Monitoring equipment	Information of monitoring equipment as follow tables: <table><tr><td></td><td>Main meter</td><td>Backup meter</td></tr><tr><td>Meter Type</td><td colspan="2">DSZ331</td></tr></table>

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QA/QC procedures to be applied	Measurement results should be cross-checked by records for sold electricity.
Purpose of the data	Baseline emission calculations
Calculation method	-
Comments	-

Data / Parameter	**$EG_{facility, y}$**
Data unit	MWh
Description	Net electricity supplied by the project activity to the grid in year y
Source of data	Calculated and measured by meters installed at the output of the on site booster station and meter installed at 10kV backup line of the project
Description of measurement methods and procedures to be applied	Calculated from the above measured parameters and recorded on a monthly basis

Frequency of monitoring/recording	-
Value monitored	01-12-2018~31-12-2018: 3,234.20 2019: 50,627.27 2020: 54,587.67 01-01-2021~31-03-2021: 11,975.68
Monitoring equipment	-
QA/QC procedures to be applied	Measurement results should be cross-checked by records for sold electricity.
Purpose of the data	Baseline emission calculations
Calculation method	It is calculated by using the Equation ($EG_{PJ\ to\ grid,y} - EG_{grid\ to\ PJ,y}$)
Comments	-

4.3 Monitoring Plan

4.3.1 Data to be monitored

Emission factor of the Project has been determined ex-ante. And the quantity of electricity supplied by the Project to the grid in year y ($EG_{PJ\ to\ grid,\ y}$) and the quantity of electricity imported from the grid by the Project in year y ($EG_{grid\ to\ PJ,\ y}$) which is used to calculate emission reductions will be monitored by electricity meters. Net electricity supplied to the grid ($EG_{facility,\ y}$) will be calculated by following equation: $EG_{facility,\ y} = EG_{PJ\ to\ grid,\ y} - EG_{grid\ to\ PJ,\ y}$.

4.3.2 Implementation of the monitoring plan

The Emission technical staff and Emission statistic staff are appointed by the project owner, who supervise and verify metering and recording, collect data (the data on the meter, sales/purchasing invoices or the balance bill), calculate emission reductions and prepare monitoring report.

The Emission manager takes the responsibility for the monitoring plan implementation. A emission team is established and consists of project manager, Emission manager, technical staff, and statistic staff. Organizing structure of the Emission team is shown as Figure 2.

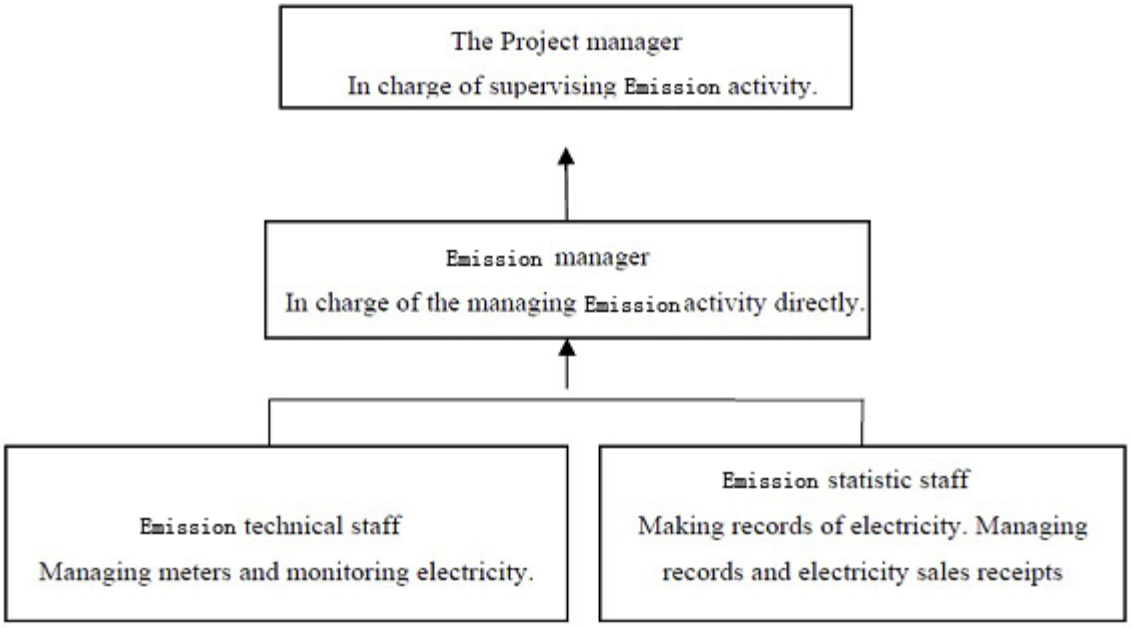

Figure 2 : Structure of the Emission team

Training activity has been organized by the project owner which mainly include about the VCS basic knowledge, the monitoring requirement, the validation, and verification.

4.3.3 Monitoring Equipment and program

The electric energy metering equipment were properly configured and the metering equipment were checked by both the project owner and the grid company before the project starts Operating according to relevant standard in China.

Main meter (M1) and backup meter (M2), which measure the electricity supplied to the grid and electricity supplied by the grid, are installed at the output of the on-site booster station of the project. Meter (M3), which measures the electricity use of power plant supplied by the grid, is installed at 10kV backup line.

The power connection diagram is as follows:

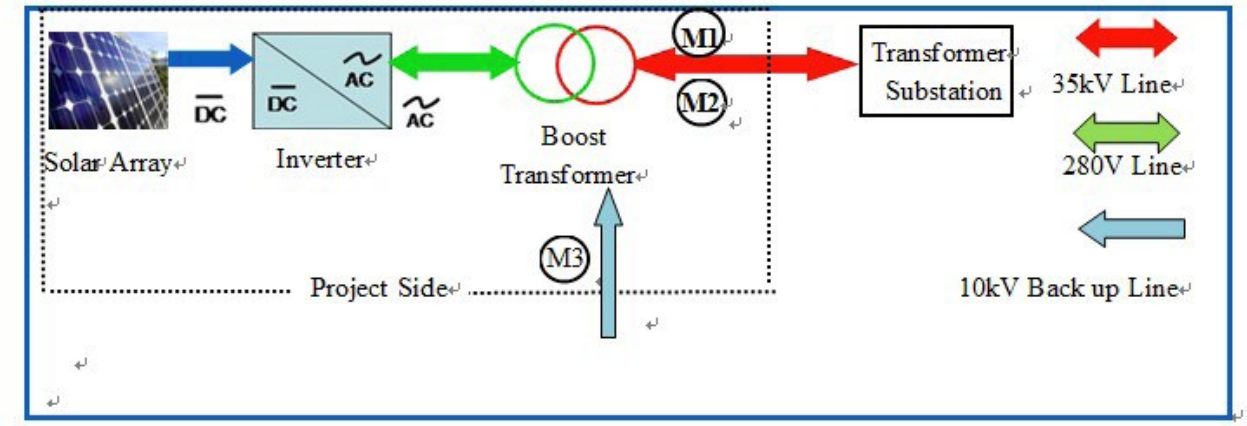

Figure 3 : Power Connection Diagram

4.3.4 Data Collection

On-duty staff monitored the operation status of metering equipment on site. Furthermore, designated staff collected the measured electricity and completed the corresponding records on a monthly basis. Before being archived, these records checked by other staffs to ensure the correctness. The data from these records were digested and analyzed and the results were reported to company administrator or supervisor.

All the relevant data records will be kept by the project owner during the crediting period and at least for two years after the end of the last crediting period.

4.3.5 Quality assurance and quality control

The quality assurance and quality control procedures involves of data monitoring, recording, maintaining and archiving, and monitoring equipment calibration. The monitoring data would be cross checked by the sold and bought records of the project for the purpose of quality control.

Calibration of meters & metering should be implemented according to national standards and rules, and all the records should be documented and maintained by the project owner for verification.

4.3.6 Procedures of exception handling and reporting

The Emission technical staffs take real-time monitoring on the operation status of meters to ensure that any abnormity could be detected and the corresponding measures of processing, reporting and recording were taken in time. The abnormal meter will be repaired immediately and must be calibrated by a qualified third-party before being put into use again.

Problem occurred in monitoring and measurement process will be recorded and reported to company administrator or supervisor. Consequently, the corrective resolution will be adopted to deal with that problem and to avoid it occur again in future.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

According to 2011 Baseline emission factors for regional power grids in China issued by the National Development and Reform Commission of the Government of China (China DNA), the OM emission factor ($EF_{grid,OM,y}$) of NWPG is calculated as 1.0001 tCO_2/MWh, and the build margin emission factor ($EF_{grid,BM,y}$) of NWPG is calculated as 0.5851 tCO_2/MWh.

Based on formula $EF_{grid,CM,y}= w_{OM} \times EF_{grid,OM,y} + w_{BM} \times EF_{grid,BM,y}$, the baseline emissions factor ($EF_{grid,CM,y}$) of NWPG is calculated as 0.89635 tCO_2/MWh.

Baseline emissions are:

$EG_{facility,y}= EG_{PJ\ to\ grid,\ y} - EG_{grid\ to\ PJ,\ y}$=121,451.29-1,026.47(MWh)=120,424.82MWh

$BE_y = EG_{facility,y} \times EF_{grid,CM,y}$ =120,424.82(MWh)*0.89635(tCO_2/MWh)=107,929tCO_2

The summary of $EG_{PJ\ to\ grid,\ y}$ on the below table:

$EG_{PJ\ to\ grid,\ y}$ (MWh)	
01-12-2018~31-12-2018	3,257.00
2019	51,082.00
2020	55,010.96
01-01-2021~31-03-2021	12,101.33
Total from 2018 to 2021	121,451.29

Detailed information listed in below.

Date		Quantity of electricity supplied by the Project to the grid ($EG_{PJ\ to\ grid,\ y}$)					
		MWh				Value on sales receipt (MWh)[1]	Value used for Ers calculation (MWh)
		Start	End	Magnification	Value (MWh)		
From	To	A	B	C	D=(B-A)*C/1000	E	F=MIN(D,E)
01/12/2018	**31/12/2018**	8,811.73	8,889.98	42,000	3,286.50	3,257.00	3,257.00
Total in 2018(MWh)					**3,286.50**	**3,257.00**	**3,257.00**
01/01/2019	**31/01/2019**	8,889.98	8,973.66	42,000	3,514.56	3,473.00	3,473.00
01/02/2019	**28/02/2019**	8,973.66	9,049.87	42,000	3,200.82	3,166.00	3,166.00
01/03/2019	**31/03/2019**	9,049.87	9,163.81	42,000	4,785.48	4,729.00	4,729.00
01/04/2019	**30/04/2019**	9,163.81	9,282.27	42,000	4,975.32	4,926.00	4,926.00
01/05/2019	**31/05/2019**	9,282.27	9,400.41	42,000	4,961.88	4,903.00	4,903.00
01/06/2019	**30/06/2019**	9,400.41	9,499.60	42,000	4,165.98	4,133.00	4,133.00
01/07/2019	**31/07/2019**	9,499.60	9,621.50	42,000	5,119.80	5,069.00	5,069.00
01/08/2019	**31/08/2019**	9,621.50	9,737.89	42,000	4,888.38	4,859.00	4,859.00
01/09/2019	**30/09/2019**	9,737.89	9,849.35	42,000	4,681.32	4,626.00	4,626.00
01/10/2019	**31/10/2019**	9,849.35	9,942.53	42,000	3,913.56	3,898.00	3,898.00
01/11/2019	**30/11/2019**	9,942.53	10,020.42	42,000	3,271.38	3,239.00	3,239.00
01/12/2019	**31/12/2019**	10,020.42	10,118.27	42,000	4,109.70	4,061.00	4,061.00
Total in 2019(MWh)					**51,588.18**	**51,082.00**	**51,082.00**
01/01/2020	**31/01/2020**	10,118.27	10,196.12	42,000	3,269.70	3,234.00	3,234.00
01/02/2020	**29/02/2020**	10,196.12	10,299.45	42,000	4,339.86	4,280.00	4,280.00
01/03/2020	**31/03/2020**	10,299.45	10,422.31	42,000	5,160.12	5,098.80	5,098.80
01/04/2020	**30/04/2020**	10,422.31	10,561.68	42,000	5,853.54	5,778.36	5,778.36
01/05/2020	**31/05/2020**	10,561.68	10,692.75	42,000	5,504.94	5,439.84	5,439.84
01/06/2020	**30/06/2020**	10,692.75	10,818.63	42,000	5,286.96	5,234.46	5,234.46

[1] According to the registered PDD, main meter and backup meter are installed at project side which is the source of meter reading. However, as per the agreement between gird company and project owner, the billing meter of exported electricity is the meter installed at the substation of grid side, which is the basis of issued sales receipt. Therefore the only reason about the different value between the meter reading and sales receipts is the line loss when transfer the electricity from the project side to grid site.

01/07/2020	**31/07/2020**	10,818.63	10,934.29	42,000	4,857.72	4,824.12	4,824.12
01/08/2020	**31/08/2020**	10,934.29	11,040.45	42,000	4,458.72	4,436.46	4,436.46
01/09/2020	**30/09/2020**	11,040.45	11,148.08	42,000	4,520.46	4,466.70	4,466.70
01/10/2020	**31/10/2020**	11,148.08	11,246.42	42,000	4,130.28	4,085.34	4,085.34
01/11/2020	**30/11/2020**	11,246.42	11,338.65	42,000	3,873.66	3,827.88	3,827.88
01/12/2020	**31/12/2020**	11,338.65	11,442.38	42,000	4,356.66	4,305.00	4,305.00
Total in 2020(MWh)					**55,612.62**	**55,010.96**	**55,010.96**
01/01/2021	**31/01/2021**	11,442.38	11,533.65	42,000	3,833.34	3,795.54	3,795.54
01/02/2021	**28/02/2021**	11,533.65	11,622.73	42,000	3,741.36	3,696.84	3,696.84
01/03/2021	**31/03/2021**	11,622.73	11,733.45	42,000	4,650.24	4,608.95	4,608.95
Total in 2021(MWh)					**12,224.94**	**12,101.33**	**12,101.33**
Total(MWh)					**121,712.24**	**121,451.29**	**121,451.29**

The summary of $EG_{grid\ to\ PJ}$ on the below table:

$EG_{grid\ to\ PJ}$ (MWh)	
01-12-2018~31-12-2018	22.80
2019	454.73
2020	423.29
01-01-2021~31-03-2021	125.65
Total from 2018 to 2021	1,026.00

The detailed information listed in below:

Date		Quantity of electricity imported from the grid by the Project (measured by M1)						Quantity of electricity imported from the grid by the Project (measured by M3)						Sum value for ERs calculation (MWh)
		Meter Reading			Value on sales receipt (MWh)[2]	Value used for ERs calculation (MWh)		Meter Reading			Value on sales receipt (MWh)	Value used for ERs calculation (MWh)		
		Start	End	Magnification	Value (MWh)			Start	End	Magnification	Value (MWh)			
From	To	A	B	C	D=(B-A)*C/1000	E	F1=MAX(D,E)	A	B	C	D=(B-A)*C/1000	E	F2=MAX(D,E)	H=F1+F2
01/12/2018	31/12/2018	50.02	50.43	42,000	17.22	17.64	17.64	2,504.34	2,517.23	400	5.16	5.16	5.16	22.80
Total in 2018 (MWh)					**17.22**	**17.64**	**17.64**				**5.16**	**5.16**	**5.16**	**22.80**
01/01/2019	31/01/2019	50.43	51.07	42,000	26.88	27.72	27.72	2,517.23	2,568.08	400	20.34	20.34	20.34	48.06
01/02/2019	28/02/2019	51.07	51.66	42,000	24.78	25.20	25.20	2,568.08	2,622.18	400	21.64	21.64	21.64	46.84
01/03/2019	31/03/2019	51.66	52.07	42,000	17.22	18.06	18.06	2,622.18	2,666.63	400	17.78	17.78	17.78	35.84
01/04/2019	30/04/2019	52.07	52.52	42,000	18.90	19.32	19.32	2,666.63	2,708.22	400	16.64	16.64	16.64	35.96
01/05/2019	31/05/2019	52.52	53.06	42,000	22.68	23.52	23.52	2,708.22	2,743.16	400	13.98	13.98	13.98	37.50
01/06/2019	30/06/2019	53.06	53.61	42,000	23.10	23.52	23.52	2,743.16	2,747.36	400	1.68	1.68	1.68	25.20
01/07/2019	31/07/2019	53.61	54.00	42,000	16.38	16.80	16.80	2,747.36	2,784.85	400	15.00	15.00	15.00	31.80
01/08/2019	31/08/2019	54.00	54.52	42,000	21.84	22.68	22.68	2,784.85	2,827.59	400	17.10	17.10	17.10	39.78
01/09/2019	30/09/2019	54.52	55.18	42,000	27.72	28.14	28.14	2,827.59	2,853.19	400	10.24	10.24	10.24	38.38

[2] The situation of meter reading for imported electricity is like exported electricity. According to the registered PDD, main meter and backup meter are installed at project side which is the source of meter reading. However, as per the agreement between gird company and project owner, the billing meter of imported electricity is the meter installed at the substation of grid side, which is the basis of issued sales receipt. Therefore the only reason about the different value between the meter reading and sales receipts is the line loss when transfer the electricity from the project side to grid site.

01/10/2019	**31/10/2019**	55.18	55.88	42,000	29.40	30.24	30.24	2,853.19	2,870.63	400	6.98	6.98	6.98	37.22
01/11/2019	**30/11/2019**	55.88	56.75	42,000	36.54	36.96	36.96	2,870.63	2,870.69	400	0.02	0.02	0.02	36.98
01/12/2019	**31/12/2019**	56.75	57.71	42,000	40.32	41.16	41.16	2,870.69	2,870.76	400	0.03	0.03	0.03	41.19
Total in 2019 (MWh)					**305.76**	**313.32**	**313.32**				**141.41**	**141.41**	**141.41**	**454.73**
01/01/2020	**31/01/2020**	57.71	58.71	42,000	42.00	42.42	42.42	2,870.76	2,870.82	400	0.02	0.02	0.02	42.44
01/02/2020	**29/02/2020**	58.71	59.76	42,000	44.10	44.52	44.52	2,870.82	2,870.88	400	0.02	0.02	0.02	44.54
01/03/2020	**31/03/2020**	59.76	60.61	42,000	35.70	36.54	36.54	2,870.88	2,870.94	400	0.02	0.02	0.02	36.56
01/04/2020	**30/04/2020**	60.61	61.51	42,000	37.80	38.22	38.22	2,870.94	2,871.00	400	0.02	0.02	0.02	38.24
01/05/2020	**31/05/2020**	61.51	62.08	42,000	23.94	24.78	24.78	2,871.00	2,877.46	400	2.58	2.58	2.58	27.36
01/06/2020	**30/06/2020**	62.08	62.65	42,000	23.94	24.36	24.36	2,877.46	2,881.40	400	1.58	1.58	1.58	25.94
01/07/2020	**31/07/2020**	62.65	63.31	42,000	27.72	28.56	28.56	2,881.40	2,881.46	400	0.02	0.02	0.02	28.58
01/08/2020	**31/08/2020**	63.31	64.13	42,000	34.44	34.86	34.86	2,881.46	2,881.52	400	0.02	0.02	0.02	34.88
01/09/2020	**30/09/2020**	64.13	64.87	42,000	31.08	31.50	31.50	2,881.52	2,881.59	400	0.03	0.03	0.03	31.53
01/10/2020	**31/10/2020**	64.87	65.64	42,000	32.34	33.18	33.18	2,881.59	2,881.65	400	0.02	0.02	0.02	33.20
01/11/2020	**30/11/2020**	65.64	66.49	42,000	35.70	36.12	36.12	2,881.65	2,884.18	400	1.01	1.01	1.01	37.13
01/12/2020	**31/12/2020**	66.49	67.49	42,000	42.00	42.84	42.84	2,884.18	2,884.24	400	0.02	0.02	0.02	42.86
Total in 2020 (MWh)					**410.76**	**417.90**	**417.90**				**5.39**	**5.39**	**5.39**	**423.29**
01/01/2021	**31/01/2021**	67.49	68.60	42,000	46.62	47.04	47.04	2,884.24	2,884.30	400	0.02	0.02	0.02	47.06
01/02/2021	**28/02/2021**	68.60	69.56	42,000	40.32	41.16	41.16	2,884.30	2,884.35	400	0.02	0.02	0.02	41.18
01/03/2021	**31/03/2021**	69.56	70.44	42,000	36.96	37.38	37.38	2,884.35	2,884.41	400	0.02	0.02	0.02	37.40
Total in 2021 (MWh)					**123.90**	**125.58**	**125.58**				**0.07**	**0.07**	**0.07**	**125.65**
Total (MWh)					**857.64**	**874.44**	**874.44**				**152.03**	**152.03**	**152.03**	**1,026.47**

The net electricity each year supplied by the project activity to the grid, $EG_{facility, y}$, is:

EG $_{facility, y}$ (MWh)	
01-12-2018~31-12-2018	3,234.20
2019	50,627.27
2020	54,587.67
01-01-2021~31-03-2021	11,975.68
Total (2018~2021)	120,424.82

The summary of baseline emission is shown in the table below:

Period	**$EG_{PJ\ to\ grid,y}$ (Mwh)**	**$EG_{grid\ to\ PJ,y}$ (Mwh)**	**$EG_{facility,y}$ (Mwh)**	**$EF_{grid,CM,y}$ (tCO2e/MWh)**	**BE_y (tCO_2e)**
01-12-2018~31-12-2018	3,257.00	22.80	3,234.20	0.89635	2,898
2019	51,082.00	454.73	50,627.27	0.89635	45,375
2020	55,010.96	423.29	54,587.67	0.89635	48,924
01-01-2021~31-03-2021	12,101.33	125.65	11,975.68	0.89635	10,732
Total	121,451.29	1,026.47	120,424.82	-	107,929

5.2 Project Emissions

According to ACM0002, the project emission (PE_y) is zero as the project activity is a photovoltaic power generation project without any fossil fuel consumption. Thus, no project emissions are envisaged from the project activity.

5.3 Leakage

According to the methodology ACM0002 version 13.0.0, no leakage emissions are considered. Thus $LE_y = 0$

5.4 Net GHG Emission Reductions and Removals

The NET GHG emission reduction annual is shown through the table below. The total emission reduction during this monitoring period is 107,929tCO_2e. According to the registered PDD, the expected annual emission reduction is 48,402 tCO_2e, then the expected emission reduction during this monitoring period (01-12-2018 to 31-03-2021) is 112, 982tCO_2e, calculated through the formula below:

$$48{,}402(tCO_2e) \div 365(days) * 852(days) = 112{,}982tCO_2e$$

The variation between the estimated value and actual value is -4.47%. Due to the weather and equipment maintenance and other reasons, the illumination intensity in some months is insufficient, so this variation is within a reasonable range.

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01-12-2018~ 31-12-2018	2,898	0	0	2,898
2019	45,375	0	0	45,375
2020	48,924	0	0	48,924
01-01-2021~ 31-03-2021	10,732	0	0	10,732
Total	107,929	0	0	107,929