VALIDATION AND VERIFICATION REPORT FOR THE VCS PROJECT:

Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project

Document Prepared By China Quality Certification Center (CQC)

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Summary:

China Quality Certification Centre (CQC) is commissioned by Climate Bridge Ltd. to perform a gap validation and verification for the project -'Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project' with regard to the requirements of VCS (version 3.4) and ACM0002 (Version 13).

The proposed project -'Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project' was registered as a CDM project on 21/11/2012 and the UNFCCC reference number is 8251. This gap validation of VCS PD template (version 3.12 sections 1.2,1.3,1.5,1.6,1.7,1.9,1.10,1.12.1,1.12.2,1.12.3.1.12.4 and 1.13 is included to cover all the requirements set out in the VCS Standard (version 3.4) for project validation together with the validated PDD (Version 02, dated 19/10/2012) and CDM validation report(Version 01, dated 05/11/2012).

The validation under CDM was conducted within two years of the project start date and no non-conformity was found during this gap validation. Concurrently with the gap validation, the verification of emission reductions achieved during the monitoring period from 28/12/2011 to 30/11/2012 was conducted.

A risk-based approach and document review and an on-site visit combined method were followed by CQC team to perform this verification. In the course of the verification, 2 clarifications were raised and successfully closed.

Based on the information and evidence observed and evaluated during document review and on-site assessment, CQC team confirms that:

- The project is implemented as per the registered CDM PDD;
- Monitoring report complies with the applied methodology;
- The monitoring is implemented as per monitoring plan of the registered CDM PDD;
- The GHG emission reductions are calculated without material misstatements.

Therefore, CQC team confirms the following statements:

- Reporting period: from 28/12/2011 to 30/11/2012.
- Verified emission in the above reporting period:

Vintage	2011 (28/12/2011 to 31/12/2011)	2012 (01/01/2012 to 30/11/2012)
Baseline emissions (tCO_2e)	130	38,706
Leakages(tCO_2e)	0	0
Verified Carbon Units(tCO_2e)	130	38,706

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Abbreviations

CAR	Corrective Action Request
NWPG	Northwest China Power Grid
CDM	Clean Development Mechanism
CL	Clarification
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CQC	China Quality Certification Centre
FAR	Further Action Request
GHG	Greenhouse Gas
MR	Monitoring Report
PD	Project Description
PDD	Project Design Document
PP	Project Participant
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Clean Development Mechanism Validation and Verification Manual

1 INTRODUCTION

China Quality Certification Centre (CQC) is commissioned by Climate Bridge Ltd. to perform a gap validation and verification of the project -'Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project'. The monitoring period of this verification is from 28/12/2011 to 30/11/2012. The report, completed as per the requirements of VCS Standard (version 3.4)[/1/], contains the findings from the gap validation and verification.

1.1 Objective

The objective of the gap validation of the project is to determine whether the validated CDM project, Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project, meet all the criteria defined under VCS Standard (version 3.4)[/1/].

Verification is the independent review and ex-post determination by the verification body of the monitored reduction in GHG emissions during defined monitoring period. The purpose of this verification, by checking the objective evidences independently, is as follows:

- to verify whether the reductions generated by the project are in line with the VCS Standard (version 3.4) and the information provided by the project participants contains all the necessary information to evidence the project's compliance with all criteria in the Verified Carbon Standard (VCS),
- to verify whether the implementation of the project is consistent with the description in the MR and PDD and the monitoring system is fully functional to generate VCUs without any double counting,
- to verify whether the data reported are accurate, complete, consistent, transparent and free of material error or omission by assessing the monitoring records and the emissions reduction calculation, and
- to validate whether the VCS requirements not covered by the CDM validation are met by the project.

1.2 Scope and Criteria

CQC team has employed a risk-based approach in the gap validation and verification, focusing on the identification of significant risks and reliability of project design, system monitoring and generation of emission reductions according to the relevant applicable rules for VCUs verification under the VCS.

The gap validation and verification of this VCS project are based on the VCS project description[/6/] defined in VCS Standard (version 3.4), Monitoring Report[/2//3/], the validated CDM project design document (PDD)[/4/] and CDM validation report[/5/], ACM0002 (Version 13)[/7/] and other supporting documents, combined with the on-site assessment. Furthermore, publicly available information was considered as well.

This gap validation and verification are not intended to provide any consulting services to the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

As the VCS Standard (version 3.4) only recognizes verified emission reductions, CQC has focused on providing a reasonable level of assurance that the emission reduction calculation methodology used is appropriate and correctly applied, and that emission reductions have been accurately monitored.

The gap validation and verification report is based on VCS PD,CDM PDD, CDM validation report, VCS Monitoring Report, supporting evidence made available to the verifier and information collected through performing interviews and during the on-site visit.

1.4 Summary Description 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").

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 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.

During this monitoring period (28/12/2011-30/11/2012), the monitoring activities were conducted strictly in accordance with the monitoring plan in the registered PDD. The Project has operated without any accidental or emergency events that might impact the accuracy and/or implementation of monitoring activities.

The annual exported 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 48,402tCO_2e.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The validation was performed in two stages: document review and on-site assessment (including interview and inspection). The gap validation was in accordance with applicable criteria listed in section 1.2 of this report and two CLs were found by CQC validation team during this gap validation.

2.2 Document Review

The validation was planned after review of the VCS Project Description specified as VCS PD template (version 3.2) sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 to cover all the requirements set out in the VCS Standard (version 3.4), monitoring report and the methodology used

to develop the project's greenhouse gas assertion.

PD (version 01) and supporting background documents related to the project design were sent to CQC on 20/09/2013.

PD (version 02) and supplementary evidence for closing the CLs raised were sent to CQC on 09/10/2013

2.3 Interviews

The PD and other supporting documents of the project was published on VCS website on 20/09/2013 (https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Pipeline&a=3&i=1143&lat=37%2E80678&lon=106%2E363754&bp=1). After had confirmed these information, CQC validation team conducted a site visit of the Project on 23/09/ 2013. The purpose and objective of the site visit was to interview relevant site personnel and review the Project's background, operations, eligibility and information management systems, as well as assess the Project's controls for sources of potential errors and omissions. The validation team interviewed the following persons:

Table 2-1 Interviewed persons and interview topics

Date	Interviewee	Organization	Interview Topics
23/09/2013	Mr. Zhang Guojun	Datang Angli (Lingwu) New Energy Co., Ltd. (Project owner)	- Project background information; - Desk review findings; - General aspects of the project; - Project design, Commissioning and implementation; - Technical equipment; - Editorial aspects of supplement PD;
	Mr. Liang Jia	China Datang Corporation Renewable Power Co., Limited (Consultant)	

2.4 Site Inspections

On 23/09/2013, CQC verification team performed an on-site visit at this project. During this visit, CQC verification team:

- Confirmed the implementation and operation of the project;
- Confirmed issues identified during document review;
- Confirmed the correct procedure of implementation for operations and data collection;
- Cross-checked information provided in the MR documentation with other sources (raw data);
- Checked the monitoring equipments against the requirements of the PD and the approved methodology, including calibrations, maintenance, etc.;
- Identified if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

2.5 Resolution of Findings

Resolution of Any Material Discrepancy

Material discrepancies identified in the course of the gap validation are addressed either as CARs, CLs or FARs.

A **Corrective Action Request (CAR)** is established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not

been met or

- there is a risk that the project would not be registered or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

2.5.1 Forward Action Requests

No FAR was raised during this verification.

2.6 Eligibility for Validation Activities

According to the VCS website ( ),CQC has the validation and verification accreditation for scope 1~13.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The proposed project was registered as a CDM project on 21/11/2012 and the UNFCCC reference number is 8251[/10/]. As per the requirements defined under VCS Standard (version 3.4)[/1/], especially specified in sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1. 12.2, 1.12.3, 1.12.4 and 1.13 of the VCS *Project Description Template* (version 03.2) shall be subject to further validation. The gap validation of these sections is stated as follows:

Section 1.2: Sectoral Scope and Project Type

Based on the onsite visit, the validation team concludes that the Project was appropriately classified as a Sectoral Scope 1 project under the classification scheme of the Clean Development Mechanism. Sectoral Scope 1 is “energy industries (renewable-/non-renewable sources).” The validation team also concludes that the Project activity was grid-connected renewable power generation (solar power project).Based on the registered CDM PDD and CDM validation report, combined with the onsite visit, CQC team confirms that this project is not a grouped project.

The applied baseline and monitoring methodologies and tools are:

- ACM0002 (Version 13) – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”;
- Demonstration and Assessment of Additionality, version 06.1;
- Tool to calculate the emission factor for an electricity system, version 02.2.1

For more information regarding the methodology, please refer to the link:

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

Section 1.3: Project Proponent

CQC validation team has reviewed the letter of approval issued by the National Development and Reform Commission of the People’s Republic of China[/10/] under CDM and Business License[/9/] and the Feasibility Study Report (FSR) Approvals[/19/] issued Moreover, CQC validation team performed an onsite assessment for this project on 23/09/2013. All of these activities have provided CQC validation team with sufficient evidence that Datang Angli (Lingwu) New Energy Co., Ltd. is the project owner of this project and the contact information in the VCS PD[/6/] is accurate.

Section 1.5: Project Start Date

PP has supplied the daily operation records[14] which shows that the project was put into operation on 28/12/2011. Therefore, CQC concludes the project start date is 28/12/2011, which is consistent with the definition in the VCS Standard (version 3.4).

Section 1.6: Project Crediting Period

This project was registered as a CDM project on 21/11/2012 (UNFCCC registration reference number: 8251) and the start crediting date under CDM was 01/12/2012 according to the information on UNFCCC (http://cdm.unfccc.int/Projects/DB/BVQI1353045070.95/view).

Then PP has chosen the Project Crediting Period of this project under VCS from 28/12/2011 (Project Start Date) to 30/11/2012. CQC validation team confirms that the chosen project crediting period is in conformity with VCS Standard (version 3.4).

Section 1.7: Project Scale and Estimated GHG Emission Reductions or Removals

CQC validation team has reviewed the PDD and validation report under CDM and confirms the estimated calculation of ER is 48,402 tonnes of CO_2e annually and reasonable. In accordance with the VCS Standard (version 3.4), large project is defined as the project that generates 300,000 tonnes CO2e or more of GHG emissions reductions or removals per year. Thus, it is validated that the scale of the project with estimated emission reductions less than 300,000 tonnes CO2e is "Project".

Section 1.9: 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 CQC validation team performed an on-site visit to the project on 23/09/2013 and confirms that the project falls in multiple project activity instances defined in VCS Standard (version 3.4) and the description of project location consists with the VCS PD and VCS Standard (version 3.4).

Section 1.10: Conditions Prior to Project Initiation

CQC validation team has reviewed the registered CDM PDD and VCS PD and confirms that the conditions existing prior to project initiation is that the electricity requirement was satisfied by Ningxia power grid which is a sub-grid of the Northwest China Power Grid (NWPG).

The development and implementation of the Project fits into the priority areas of the development of China's energy industry. The Project is not only supply renewable electricity to grid, but also contributes to sustainable development of the local community and the host country.

Section 1.12.1: Right of Use

Evidence of proof of title has been demonstrated via document proving ownership of the plant and equipment at the site during the on-site visit. In addition to the letter of approval granted by the National Development and Reform Commission of the People's Republic of China[8], the owner has also obtained all relevant permits for the proposed project including a Business License[9], Feasibility Study Report (FSR) approvals[19]issued by the Ningxia Hui Automonous Region Development and Reform Commission, Environmental Impact Assessment (EIA) approvals[11] issued by Ningxia Hui Automonous Region Environment Protection Bureau.

The CQC validation team confirms that the project's design and implementation has been subject to relevant national legislation in China, which also meets the VCS Standard (version 3.4).

Section 1.12.2: Emissions Trading Programs and Other Binding Limits

Emissions from this project during this monitoring period will be only claimed as VCUs under VCS. GHG

emission reductions generated by the proposed project during the CDM crediting period will be verified as unique CERs during the CDM crediting period.

The team also checked the Gold Standard Registry and the Climate Action Reserve to determine if the project is producing other environmental credits. It was confirmed by the CQC validation team that the project is not listed on these registries. Emissions from this project were not subject to any other emissions trading programs or other binding limits on emissions and none were proposed for implementation by any local regional or national authorities at the date of the project validation.

The CQC validation team confirms that it is not applicable for the project participating in emissions trading programs and Other Binding Limits.

Section 1.12.3: Participation under Other GHG Programs

This project was registered as a CDM project on 21/11/2012 and only emission reductions achieved before CDM crediting start date (01/12/2012) were claimed as VCUs under VCS.

Section 1.12.4: Other Forms of Environmental Credit

As a registered CDM project, any emission reductions generated from the project starting from the crediting start date (01/12/2012) will be verified under the CDM as CERs. Any qualified emission reductions generated outside of the CDM, emission reductions generated prior to the CDM registration date, were generated voluntarily. Those voluntary emission reductions of this project are validated and verified as VCUs under the VCS.

The team also checked the Gold Standard Registry and the Climate Action Reserve to determine if the project is producing other environmental credits. It was confirmed by the CQC validation team that the project is not listed on these registries and therefore there is no other environmental credit (for example renewable energy certificate) which has or will be produced by or obtained for the project.

Section 1.13: Additional Information Relevant to the Project

- *Eligibility Criteria*

  N/A, this project is not grouped projects.

- *Leakage Management*

  N/A, the leakage of the project is zero. Detailed information on leakage has been stated in verification part below.

- *Commercially Sensitive Information*

  N/A, all information stated in this report is public.

- *Further Information*

  N/A, the CQC validation team haven't identified any additional information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

3.2 Methodology Deviations

N/A.

3.3 Project Description Deviations

N/A.

3.4 Grouped Project

N/A.

Climate Bridge Ltd. has commissioned CQC to carry out the supplement validation of the project "Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project", with regard to the relevant requirements of VCS Standard (version 3.4).

Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant 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. 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
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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. 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 48,402tCO_2e.

The methodology applied for this project is ACM0002 (Version 13) – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

This project which was earlier validated by other DOE as a CDM project activity was given a positive validation opinion and the project has been accepted and registered with UNFCCC (Ref. No. 8251, registration date: 21/11/2012).

Thus as per the VCS Standard (version 3.4), only gap validation is required. A risk based approach has been followed to perform this limited validation covering the sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1. 12.2, 1.12.3, 1.12.4 and 1.13 of the VCS *Project Description Template* (version 3.2) and no any discrepancy is identified in the course of the gap validation.

As a result of the gap validation, the validation team confirms that the project follows the VCS Standard (version 3.4).

The PD version 01 was revised to version 02 for some typing errors.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The verification team has performed an on-site visit to verify the real implementation of the project against the description in the registered CDM PDD and VCS PD.

The project generates 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. The Project achieves 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 48,402tCO_2e.

The previous validation report has been checked by the verification team and no remaining issue was found. Meanwhile there is no methodology deviation during previously validation.

Therefore, the verification team can confirm that PP implemented and operated the project activity in accordance with the CDM PDD and VCS PD. The actual project activity does not contain changes which may impact the additionality or scale of the project activity or applicability of baseline methodology.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Emission reductions were calculated ex-post and in accordance with the registered CDM PDD and VCS PD which conforms to the applied methodologies.

According to the registered PDD, the following data and parameters need to be monitored for determining the ERs and the way the verification team has verified the values in the monitoring reports are described below:

Data Unit / Parameter:	$EG_{PJ\ to\ grid,y}$
Data unit:	MWh
Description:	Quantity of electricity supplied by the Project to the grid in year y
Process of verification	According to the registered PDD: The real value of $EG_{PJ\ to\ grid,y}$ will be measured by the electricity meters M1 and M2. Directly measured by electricity meters with precision 0.5S installed at the output of the on-site booster station. The recording frequency will be continuously measured and monthly recorded and aggregated. Measurement results should be cross-checked by records for sold electricity. The regular calibration and on-site verification has been implemented as per the Technical administrative code of electric energy metering (DL/T 448-2000) to ensure the precision of electricity meters. Electricity meters should be calibrated every year. The verification findings during on-site visit are as follows: The main meter (M1) and back-up meter (M2) with accuracy 0.2S were well installed onsite, the verification team has checked the meters onsite and confirms that it is acceptable to use meters with higher accuracy. During verification it was confirmed that no breakdown occurred during this monitoring period. The readings of M1 were recorded daily. The meter records of M1[14] was supplied to verification team during the onsite visit. The record values of M1 are used for ER calculation and listed in appendix ER calculation spreadsheet. Since M1 was in good operation, M2 was not used during the monitoring period. The grid company recorded the billing meter which was installed at the substation of grid side at the last day of every month, based on which, the sales receipts[17] was issued to the project owner by the grid company.The verification team has crosschecked the record values of M1 against the the sales receipts, it was found that the values in the sales receipts was smaller than that in M1 records due to the line loss between the onsite booster and substation, the verification team confirms it is reasonable and conservative to

<table>
<tr><td></td><td>use the value of the sales receipts in ER calculation. Nevertheless, the difference between the value of exported electricity in meter readings and sales receipts is not clarified in the MR version 01. Therefore CL2 was raised and successfully closed (Ref to annex 1 of this report for details.).

Calibration of the electricity meters was conducted by the accredited third-party organization, Ningxia electric energy metering and Testing Center[16]. The accreditation certificate number is 3-4-00101-2011. The valid period can cover this monitoring period from 28/12/2011 to 30/11/2012. Calibration certificates[15].were provided and the calibration was carried out in accordance with the registered PDD. The detailed information on calibration and the two meters are listed below table.
<table>
<tr><td></td><td>Main meter M1</td><td>Backup meter M2</td></tr>
<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">14/12/2011</td></tr>
<tr><td>Validity</td><td colspan="2">14/12/2011 to 13/12/2012</td></tr>
</table>
</td></tr>
</table>

Data Unit / Parameter:	$EG_{grid\ to\ PJ,y}$
Data unit:	MWh
Description:	Quantity of electricity imported from the grid by the Project in year y.
Process of verification	According to the registered PDD: The real value of $EG_{grid\ to\ PJ,y}$ will be measured by meters installed at the output of the on-site booster station (M1 and M2) and meter installed at 10kV backup line (M3). Directly measured by electricity meters with precision 0.5S installed at the output of the on-site booster station. The recording frequency will be continuously measured and monthly recorded and aggregated. Measurement results should be cross-checked by records for purchase electricity. The regular calibration and on-site verification has been implemented as per the Technical administrative code of electric energy metering (DL/T 448-2000) to ensure the precision of electricity meters. Electricity meters should be calibrated every year. The verification findings during on-site visit are as follows: Two electricity meters, M1 as main meter and M2 as backup meter, with mutual accuracy 0.2S were well installed onsite. M3 is installed at 10kV backup line with mutual accuracy of 0.5S. The verification team has checked the meters onsite and confirms that it is acceptable to use meters with higher accuracy. During verification it was confirmed that no breakdown occurred during this monitoring period. The reading of M1 was recorded daily. The meter records of M1[14] was supplied to verification team during the onsite visit. The record values of M1 are used for ER calculation and listed in appendix ER calculation spreadsheet. Since M1 was in good operation, M2 was not used during the monitoring period. The readings of M3 was recorded by the grid company every monthly. Based on the readings of M1 and M3, the grid company issues the purchase receipts[18] to the project owner every month. The verification team has checked the purchase receipts against the reading of M1 and M3, they are consistent with each other.

	However, the meters which monitor the imported electricity is not fully described in the information of parameters $EG_{grid\ to\ PJ,y}$ in MR version 01, therefore CL1 was raised and successfully closed (Ref to annex 1 of this report for details.). Calibration of the electricity meters was conducted by the accredited third-party organization, Ningxia electric energy metering and Testing Center[16]. The accreditation certificate number is 3-4-00101-2011. The valid period can cover this monitoring period from 28/12/2011 to 30/11/2012. Calibration certificates[15].were provided and the calibration was carried out in accordance with the registered PDD. The detailed information on calibration and the two meters are listed below table.

	Main meter M1	Backup meter M2	10kV meter M3
Meter Type	DSZ331		DSZ535
Accuracy class	0.2s		0.5s
Serial No.	0001468380	0001468381	0001350093
Calibration frequency	Annually		Annually
The calibration date	14/12/2011		14/12/2011
Validity	14/12/2011 to 13/12/2012		14/12/2011 to 13/12/2012

Data Unit / Parameter:	$EG_{facility,y}$
Data unit:	MWh
Description:	Net electricity supplied by the project activity to the grid in year y
Process of verification	It is calculated by using the Equation ($EG_{facility,y} = EG_{PJ\ to\ grid,y} - EG_{grid\ to\ PJ,y}$) The verification team has checked the ER calculation sheet and confirms that the calculation is correct.

According to the registered CDM PDD and applied methodologies, there is no other data or parameter required to be monitored ex-post. According to the detailed verification process stated in upper part, CQC verification team is able to confirm that the monitoring has been carried out in accordance with the monitoring plan contained in the PDD. All the parameters need to be monitored have been verified against the registered PDD and the same in the monitoring report, and found complete and accurate.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The monitoring parameters are described in section 4.2 of this report. All the data and parameters in Monitoring Report version 01 were in compliance with the registered CDM PDD.

The electric energy metering equipments were properly configured and the metering equipments 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 through the10kV backup line.

The power connection diagram is as follows:

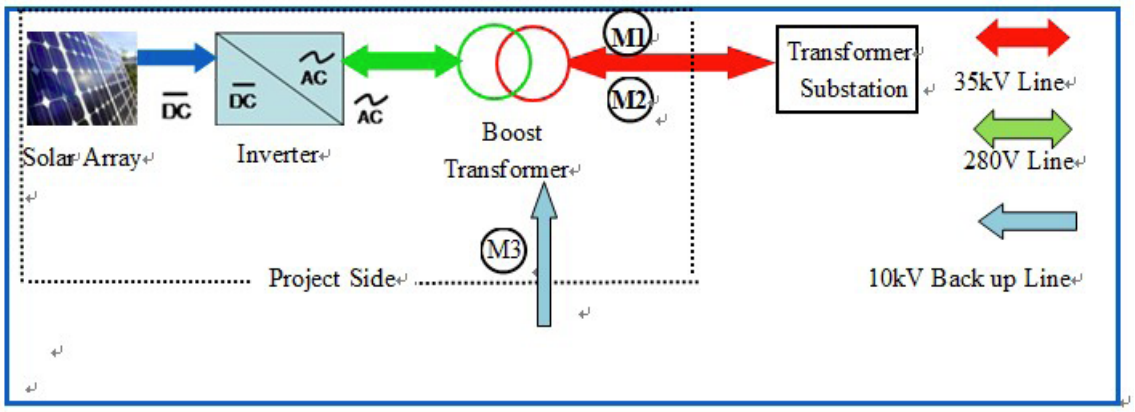

Figure 4-1. The connection structure and the meter locations

According to the registered PDD[4] and the monitoring report version 2[3], the emission reduction ER_y for the project is the baseline emissions BE_y minus the project emissions PE_y and leakage L_y. The detailed aggregated datum and calculation process of BE_y, PE_y and L_y are provided in the appendix ER calculation spreadsheet and summary calculation of BE_y, PE_y and L_y are stated below:

4.3.1 Baseline Emissions

Baseline emissions in this monitoring period are calculated by multiplying the fixed baseline emission factor which has been determined in the registered PDD of the project ex ante by net electricity supplied by the Project to the NWPG in the monitoring period.

$$BE_y = EG_y \times EF_y \quad (1)$$

$$EG_y = EG_{PJtoGrid,y} - EG_{GridtoPJ,y} \quad (2)$$

So,

$$BE_y = (EG_{PJtoGrid,y} - EG_{GridtoPJ,y}) \times EF_y \quad (3)$$

Where

BE_y =Baseline emissions of the Project in the monitoring period.

$EG_{PJtoGrid,y}$ =Electricity exported by the Project to the Northwest China Power Grid.

$EG_{GridtoPJ,y}$ = Electricity imported by the Project from the Northwest China Power Grid.

EG_y =Net electricity exported by the Project to the Northwest China Power Grid.

EF_y =Baseline emission factor in the monitoring period (calculated ex-ante and will not be changed during the first crediting period). As per the registered PDD of the project the value is 0.89635tCO_2e/MWh and this value will be also used in VCUs calculation during this monitoring period.

Table 4-2: The monitoring result of $EG_{PJtoGrid,y}$

Date	Electricity exported to grid					
	Meter Reading of M1				Value on sales receipt (MWh)	Value used for ERs calculation (MWh)
	Start	End	Magnification	Value (MWh)		

-	A	B	C	D=(B-A)*C/1000	E	F=MIN(D,E)
28/12/2011 - 31/12/2011	0.00	3.56	42,000	149.52	148.00	148.00
Total in 2011 (MWh)	-	-	-	-	-	**148.00**
01/01/2012 - 31/01/2012	3.56	50.68	42,000	1,979.04	1,959.00	1,959.00
01/02/2012 - 28/02/2012	50.68	104.32	42,000	2,252.88	2,234.00	2,234.00
01/03/2012 - 31/03/2012	104.32	166.26	42,000	2,601.48	2,575.00	2,575.00
01/04/2012 - 30/04/2012	166.26	241.69	42,000	3,168.06	3,136.00	3,136.00
01/05/2012 - 31/05/2012	241.69	336.27	42,000	3,972.36	3,932.00	3,932.00
01/06/2012 - 30/06/2012	336.27	438.37	42,000	4,288.20	4,245.00	4,245.00
01/07/2012 - 31/07/2012	438.37	565.01	42,000	5,318.88	5,265.00	5,265.00
01/08/2012 - 31/08/2012	565.01	683.84	42,000	4,990.86	4,941.00	4,941.00
01/09/2012 - 30/09/2012	683.84	811.15	42,000	5,347.02	5,170.00	5,170.00
01/10/2012 - 31/10/2012	811.15	943.54	42,000	5,560.38	5,370.00	5,370.00
01/11/2012 - 30/11/2012	943.54	1,058.45	42,000	4,826.22	4,668.00	4,668.00
Total in 2012 (MWh)	-	-	-	-	-	**43495.00**
Total(MWh)	-	-	-	-	-	**43,643.00**

Table 4-3: The monitoring result of $EG_{GridtoPJ,y}$ (Electricity imported from grid and through 10 kV line)

Date	Electricity imported from grid through onsite booster						Electricity imported from grid through 10 kV line					
	Meter Reading of M1				Value on sales receipt (MWh)	Value used for ERs calculation (MWh)	Meter Reading of M3				Value on sales receipt (MWh)	Value used for ERs calculation (MWh)
	Start	End	Magnification	Value (MWh)			Start	End	Magnification	Value (MWh)		
-	A	B	C	D=(B-A)*C/1000	E	F=MAX(D,E)	A	B	C	D=(B-A)*C/1000	E	F=MAX(D,E)
28/12/2011 - 31/12/2011	0.00	0.03	42,000	1.26	1.26	1.26	0.00	3.05	400	1.22	1.22	1.22
Total in 2011 (MWh)	-	-	-	-	-	**1.26**	-	-	-	-	-	**1.22**
01/01/2012 - 31/01/2012	0.03	0.38	42,000	14.70	14.70	14.70	3.05	9.27	400	2.49	2.49	2.49
01/02/2012 - 28/02/2012	0.38	0.65	42,000	11.34	11.34	11.34	9.27	19.39	400	4.05	4.05	4.05
01/03/2012 - 31/03/2012	0.65	0.90	42,000	10.50	10.50	10.50	19.39	30.10	400	4.28	4.28	4.28
01/04/2012 - 30/04/2012	0.90	1.16	42,000	10.92	10.92	10.92	30.10	49.21	400	7.64	7.64	7.64
01/05/2012 - 31/05/2012	1.16	1.53	42,000	15.54	15.54	15.54	49.21	90.58	400	16.55	16.55	16.55
01/06/2012 - 30/06/2012	1.53	1.85	42,000	13.44	13.44	13.44	90.58	122.34	400	12.70	12.70	12.70

01/07/2012 - 31/07/2012	1.85	2.40	42,000	23.10	23.10	23.10	122.34	157.36	400	14.01	14.01	14.01
01/08/2012 - 31/08/2012	2.40	2.86	42,000	19.32	19.32	19.32	157.36	193.24	400	14.35	14.35	14.35
01/09/2012 - 30/09/2012	2.86	3.46	42,000	25.20	25.20	25.20	193.24	228.19	400	13.98	13.98	13.98
01/10/2012 - 31/10/2012	3.46	4.18	42,000	30.24	30.24	30.24	228.19	253.18	400	10.00	10.00	10.00
01/11/2012 - 30/11/2012	4.18	4.87	42,000	28.98	28.98	28.98	253.18	276.32	400	9.26	9.26	9.26
Total in 2012 (MWh)	-	-	-	-	-	**203.28**	-	-	-	-	-	**109.32**
Total (MWh)	-	-	-	-	-	**204.54**	-	-	-	-	-	**110.54**

Therefore,

For 2011, BE_y =($EG_{PJtoGrid,y}$ - $EG_{GridtoPJ,y}$)×$EF_{grid,CM,y}$ =(148-1.26-1.28) (MWh)×0.89635(tCO_2e/MWh) =130 tCO_2e;

For 2012, BE_y =($EG_{PJtoGrid,y}$ - $EG_{GridtoPJ,y}$)×$EF_{grid,CM,y}$ =(43,495-203.28-109.32) (MWh)×0.89635(tCO_2e/MWh) =38,706tCO_2e;

4.3.2 Project Emissions

The Project is a zero-emission renewable electricity generating activity. As per the registered CDM PDD and the methodology ACM0002, no emission from the project activity was identified, and $PE_y = 0$.

4.3.3 Leakage

According to the methodology ACM0002, the project leakage is not considered, and therefore, L_y =0.

4.3.4 Summary of GHG Emission Reductions and Removals

The emission reductions achieved by this project is calculated as the following formula:

For 2011, $ER_y=BE_y–PE_y–L_y$ =130 tCO_2e-0tCO_2e-0tCO_2e =130 tCO_2e;

For 2012, $ER_y=BE_y–PE_y–L_y$ =38,706tCO_2e-0tCO_2e-0tCO_2e =38,706 tCO_2e;

As a result, CQC team confirms that the clarification on this increase is sufficient and reliable and the ER calculation is accurate and conservative.

4.4 Non-Permanence Risk Analysis

As per the registered PDD and the Project Monitoring Management Manual[7] has clearly prescribed the management and operational procedures.

The monitoring of the emission reductions is carried out according to the scheme shown in figure 3. Datang Angli (Lingwu) New Energy Co., Ltd. holds the overall responsibility for the monitoring process. The plant operation staff record the electricity exported to and imported from the grid and also keep record of daily operations of the Project.

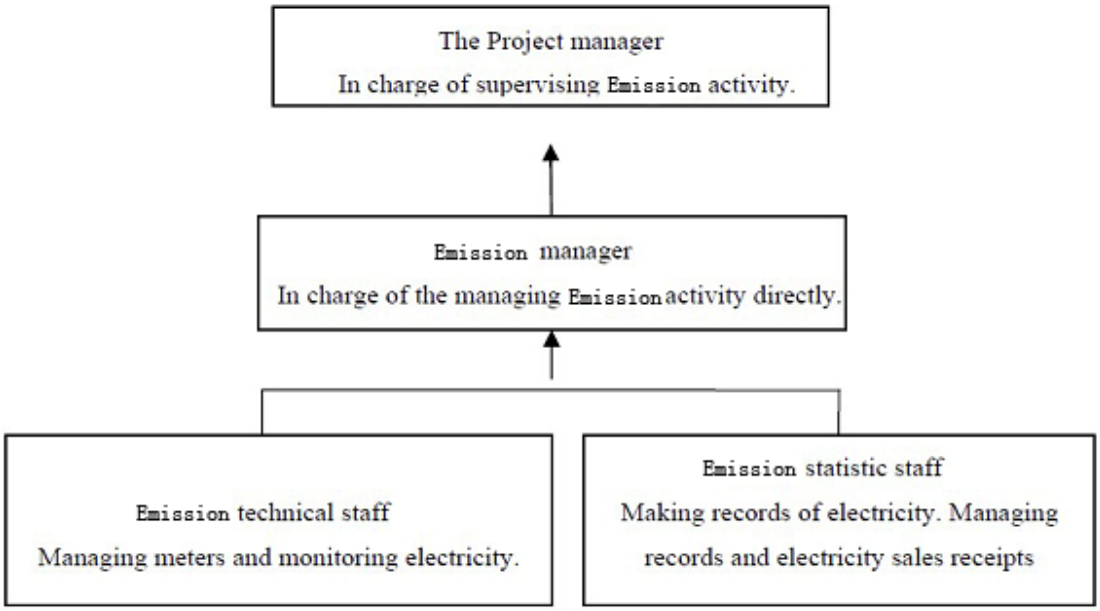

Figure 4-2. Management Structure of Monitoring Plan

Through the on-site visit and reviewing of documentations mentioned before, CQC team confirmed that all the above responsibilities were implemented well and in accordance with the monitoring plan in the registered PDD.

CQC team has also checked the training record/ and found that the training was conducted in compliance with the monitoring plan.

Therefore, CQC team confirms that the monitoring is in accordance with the monitoring plan in the registered PDD.

5 VERIFICATION CONCLUSION

CQC has performed a verification of Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project. The verification is based on the currently valid VCS Standard (version 3.4) released by Voluntary Carbon Standard Association on 04/10/2012.

Datang Angli (Lingwu) New Energy Co., Ltd. is responsible for the project implementation and operation, preparation of the GHG emissions data and reporting the GHG emission reductions of the Project on the basis set out within the monitoring plan in the registered CDM PDD. The development and maintenance of records and reporting procedures are in accordance with the plan. The calculation and determination of GHG emission reductions from the Project is the responsibility of the management of the project.

CQC verified the VCS MR version 01 dated 04/07/2013 and VCS MR version 02 dated 09/10/2013 for the reporting period and the result is indicated below. CQC confirms that the project is implemented as planned and described in the PDD. Installed equipment being essential for generating emission reductions runs reliably. The monitoring system was in place and in good condition during the onsite visit.

CQC can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion is related to the Project's GHG emissions and the resulting GHG emission reductions reported, as well as the project baseline, monitoring activity and its associated documents. Based on the information we have seen and evaluated, CQC confirms the actual amount of VCUs associated with the project specific monitoring report that has been verified as the following statement:

Emission reductions in total (28/12/2011 to 30/11/2012): ***38,836*** VCUs.

28/12/2011—31/12/2011:***130*** VCUs

01/01/2012—30/11/2012:***38,706*** VCUs

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)
2011	130	0	0	130
2012	38,706	0	0	38,706
Total	38,836	0	0	38,836

ANNEX 1- DISCREPANCY FINDINGS DURING THIS VERIFICATION

Discrepancy findings	Summary of project owner response	Verification conclusion
CL1. The meters which monitor the imported electricity is not fully described in the information of parameters $EG_{grid\ to\ PJ,y}$ in MR version 01.	The information of 10kV meter, which monitors the imported electricity through 10kV line, has been added in version 02 of MR.	OK. The meters information in MR version 02 is complete.
CL2. The difference between the value of imported electricity in meter readings and sales receipts is not clarified in the MR version 01.	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.	OK. The explanation on the difference between the value of imported electricity in meter readings and sales receipts the MR version 02 is reasonable.

ANNEX 2- DOCUMENT REFERENCE

/1/. VCS Standard (version 3.4)
/2/. The monitoring report. Version 01. Dated 04/07/2013
/3/. The monitoring report. Version 02. Dated 09/10/2013
/4/. The registered CDM PDD of this project, version 02, dated 10/10/2012
/5/. The registered CDM validation report of this project, version 01,dated 05/11/2012
/6/. The supplement VCS PD of this project defined in VCS Standard (version 3.4). version 01, dated 01/08/2013
/7/. ACM0002 (Version 13) – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".
/8/. National Development and Reform Commission of P.R. China, Letter of Approval for Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project
/9/. Business License of Electric Power for Beijing Jingneng Clean Energy Co., Ltd.
/10/. National Development and Reform Commission of P.R. China, Letter of Approval for Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project
/11/. Ningxia Hui Autonomous Region Environmental Protection Bureau, Approval for Environmental Impact Assessment of Ningxia Angli Lingwu Photovoltaic Grid Connected Power Plant Project
/12/. CDM Validation and Verification Standard (VVS, version 04.0)
/13/. Beijing Jingneng Clean Energy Co., Ltd., Monitoring & QC Manual, 12/2009
/14/. Daily meter records of the main meter
/15/. The calibration reports of the meters
/16/. The certification of Ningxia electric energy metering and Testing Center
/17/. The sales receipts of the exported electricity
/18/. The purchase receipts of the imported electricity
/19/. FSR approval of this project issued by the Ningxia Hui Automonous Region Development and Reform Commission