

Validation Opinion for Post Registration Changes

Report for:
CGN Wind Power Co., Ltd.

CDM project for
Inner Mongolia Wuliji Wind Farm Project

LRQA Reference : A20437-B-PRC Version 01.2
Date : 17/05/2013

Verification Team

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Competences

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Validation opinion

Lloyd's Register Quality Assurance Limited (LRQA) has been contracted by CGN Wind Power Co., Ltd., the project participant (PP), to undertake the third periodic verification of the registered project activity Inner Mongolia Wuliji Wind Farm Project, project reference number 2483 registered as a CDM project activity on 15/03/2010.

LRQA conducted an independent third party assessment of the Post Registration Changes from the project activity as described in the registered PDD following the CDM VVS Version 03.0, Item 9.5 and the CDM PS Version 02.1, Item 12.8 for Post Registration Changes.

LRQA confirms that the permanent changes from the registered monitoring plan reflect the application of the approved guidance of the EB regarding the deviation from the provisions of the MP and Methodology.

LRQA, by means of an on-site inspection and a review of the revised PDD, specifically the revised Monitoring Plan, can confirm that:

- (a) the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revisions.
- (b) the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity.
- (c) the findings of previous verification reports, if any, have been taken into account.

LRQA therefore requests the approval, by the CDM EB, of the post registration changes of the project activity as described above, in accordance to the guidance of the EB in the CDM PCP.

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20/05/2013

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Findings

1. Description of the permanent changes from the registered MP and or Methodology

The proposed revision is to clearly define the monitoring method of the project under the situation that: 1) the main meter is installed at the on-site substation; and 2) the project activity shares the same main transformer, substation and transmission line with other wind farm project.

1.1 Change of main meter location

In the registered MP, it stipulated that the main monitoring parameter, the net electricity supply of the project activity, will be monitored by the main meter installed at the grid side substation (accompanying with a backup meter at the project site) recording both the electricity exports to the grid and the imports from the grid. The net supply is the difference of the exports and the imports.

In the real practice (as reflected in Figure 1 below), the main meter (accompanying with a backup meter) acting as the settlement meter is installed at the outlet of the project site substation, which is stipulated by the Power purchase agreement (PPA) between the project owner and the grid company.

This situation was identified during the second periodic verification (monitoring period: 01/04/2011 - 31/01/2012) by LRQA as reflected in the CL01 in the verification report. Considering that the change is out of control by the project owner, and the accuracy and completeness of the monitoring have not been impacted, a MP revision in relation to this was not requested in the second periodic verification. Under current CDM requirements, this change is typed in the PS Appendix 1 and does not require prior approval by the board. For convenience, the PP integrated this change into the MP revision focusing on the inclusion of another wind farm project as described below.

1.2 Inclusion of another wind farm project

On 02/04/2012 another wind farm project (CGN Inner Mongolia Wuliji Phase II Wind Farm Project, Ref. 5809) using the same transformer located at the on-site substation and transmission line was put into operation and from then on the main meter measures the electricity exports and imports of the two projects. Therefore, the monitoring arrangement in the registered MP could not be implemented to obtain the net electricity supplied to the grid by the project directly.

In the revised MP, the PP described the actual location of the main meter, and adopted four additional parameters in section B.7.1, i.e., $EG_{\text{export_total}}$ - Quantity of annual electricity exported to the grid by the project and other wind farm project, $EG_{\text{import_total}}$ - Quantity of annual electricity imported from the grid by the project and other wind farm project, E_{project} - Quantity of electricity generation from the project activity metered by the separate meters, and E_{others} - Quantity of electricity generation from other projects metered by the other separate meters, to obtain the Net electricity supplied to the grid by the project in period y (EG_y). EG_y is determined using distribution method based on the net electricity supply of both projects (the difference of $EG_{\text{export_total}}$ and $EG_{\text{import_total}}$, which can be crosschecked against commercial records) and the share of the project in the total electricity generation, as below:

$$EG_y = EG_{\text{total}} * E_{\text{project}} / (E_{\text{project}} + E_{\text{others}})$$



$$EG_{\text{total}} = EG_{\text{export_total}} - EG_{\text{import_total}}$$

Where:

EG_y is the quantity of net electricity supplied to the grid by the project in period y ;

EG_{total} is the total net electricity supplied to the grid based on the data metered by the main meter;

E_{project} is the electricity generation from the project activity metered by the separate meters;

E_{others} is the electricity generation from other projects metered by the other separate meters;

$EG_{\text{export_total}}$ is the quantity of annual electricity exported to the grid by the project and other wind farm project;

$EG_{\text{import_total}}$ is quantity of annual electricity imported from the grid by the project and other wind farm project.

The separate meters M1~M8 are installed at the project site so that the electricity generation can be monitored for each wind farm separately to calculate the share of this wind farm of the total net electricity exported to the grid. Meters M1~M4 are installed in connection line 1#~4# respectively to monitor the generation from the project; Meters M5~M8 are installed in connection line 5#~8# respectively to monitor the generation from the other wind farm project. Figure 1 below describes the monitoring points:

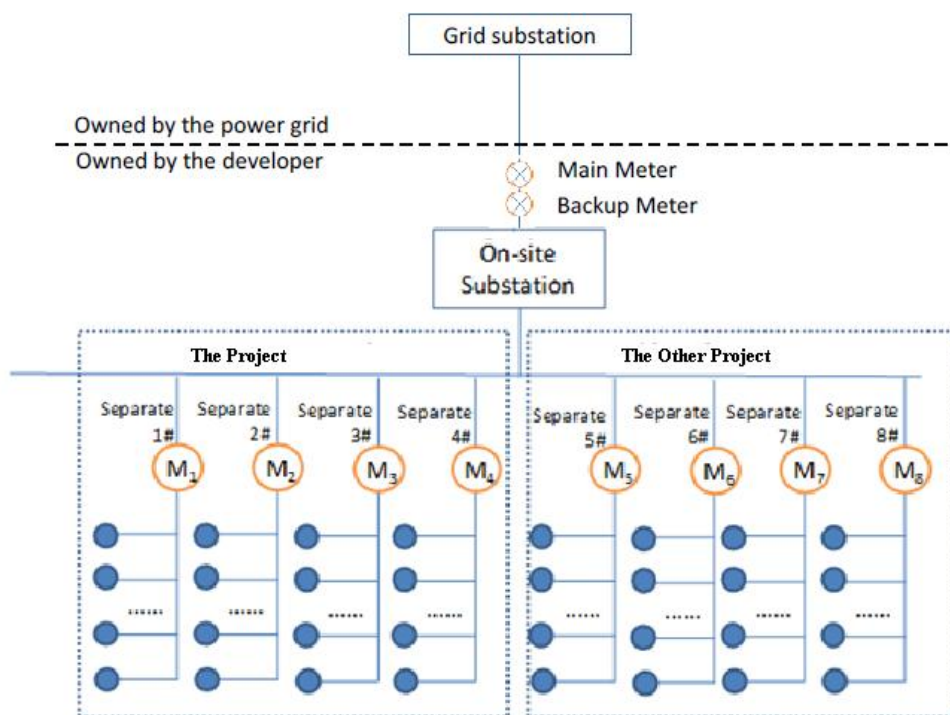


Figure 1. The arrangement of meters for the proposed project

2. Validation findings for permanent changes from the registered Monitoring Plan and/or monitoring methodology

2.1 Level of accuracy and completeness

The location of the main meter was changed as required by the PPA, and the installation of additional meters (M1~M8) is for determining the contribution of the project activity to the total net electricity supply by the two projects.



Based on the site inspection of metering system and the document review including the revised MP contained in the revised PDD, the PPA and the Wind turbines connection diagram, the team confirmed that the proposed revision is to use more applicable monitoring method under the situation of sharing the same transformer located at the on-site substation and transmission line with the other wind farm project. The applied method is applicable to the real practice of the project and can be implemented by the PP. Under the revised monitoring plan, the main meter and meters M1~M8 will be used to determine EG_y. All these meters are in the same provisions applied to all the meters concerned related with the frequency of measurement and recording, accuracy class, calibration frequency, and QA/QC procedures. The monitored data from the main meter will be cross-checked against commercial records. Therefore the proposed revision does not reduce the level of accuracy in the monitoring and verification process. The revision enhances monitoring and verification in a more complete manner reflecting the actual implementation of the monitoring with regard to the actual connection structure and metering system used and does not reduce completeness of the monitoring and verification process.

2.2 Conformance to approved monitoring methodology

The team confirmed that the proposed revision does not change the application of the approved monitoring methodology ACM0002 Version 09 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” and the compliance status is maintained as the original registration.

2.3 Findings of previous verification reports related to the changes (if any)

The change of location of the main meter was identified during the second periodic verification (monitoring period: 01/04/2011 - 31/01/2012) by LRQA as reflected in the CL01 in the verification report. Considering that the change is out of control by the project owner, and the accuracy and completeness of the monitoring have not been impacted, a MP revision in relation to this was not requested in the second periodic verification. The change of monitoring provision with regard to addition of monitoring parameters and measuring meters was occurred in the third monitoring period since the operation of the other wind farm project on 02/04/2012.

3. Appendix

Appendix 1: List of documents reviewed

1. Registered PDD Version 2.1 dated 22/02/2010
2. Revised PDD Version 03 dated 15/04/2013
3. Verification report for the second monitoring period
4. Registered PDD of project 5809
5. ACM0002/Version 09 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”
6. CDM PS Version 02.1
7. CDM VVS Version 03.0
8. CDM PCP Version 03.1
9. The PPA signed between the project owner and the grid company
10. Wind turbines connection diagram for both the project and the other wind farm project
11. Record of commissioning of wind turbines of the other wind farm project

Appendix 2: List of persons interviewed

Date	Location	Team Members on site	Subjects covered	Persons interviewed
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04- 05/03/2013	Project site	Wei Song	<ul style="list-style-type: none">• Status of project implementation• Compliance of implementation of monitoring with MP• Proposed MP revision• Monitoring system and calibration• Monitoring & reporting procedures• Emission reductions data• QA/QC procedures• Discussion on other compliance issues	<u>CGN Wind Power Co., Ltd. (the project owner)</u> <ul style="list-style-type: none">• Ms. Huiying Ji, CDM Manager• Mr. Wei Sun, CDM Monitoring Director• Mr. Xiong Bai, Chief Operational Staff
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Protocol

LLOYDS REGISTER QUALITY ASSURANCE Clean Development Mechanism Post Registration Changes Protocol

This document has been produced by the LRQA Verification Team or the Post Registration changes validation team after the desk review and the site visit, as applicable, have been completed.

It outlines the verified situation in relation to a number of criteria, including those defined in the Validation and Verification Standard (VVS) and the Project Standard (PS) produced by the CDM Executive Board.

Where LRQA has identified issues requiring corrective action or clarification, **a reference is made in the 'Conclusion' column, and details** are stated in the section marked 'Findings'.

- Part 1 Validation of temporary deviations from the registered monitoring plan and/or monitoring methodology
- Part 2 Validation of corrections
- Part 3 Validation of changes to the start date of the crediting period of the Project Activity or CPA
- Part 4 Validation of permanent changes from the registered monitoring plan or monitoring methodology
- Part 5 Validation of changes to the project design of a registered project activity
- Part 6 Validation of changes to the project design of a registered PoA



1- Validation of temporary deviations

Team conclusions	
1-1.Documentation from the PP	
1-1.1. Is the alternative monitoring proposal completed?	N/A
1-1.2. Has the supplemental documentation been submitted as appropriate, especially when further explanation is necessary on the alternative monitoring?	N/A
1-2.Level of accuracy (Para 253 of the VVS)	
1-2.1. Determine whether the deviation is likely to lead to a reduction in the accuracy of the calculation of emission reductions: Have the project participants applied conservative assumptions or discount factors to the calculations to the extent required to ensure that emission reductions will not be over-estimated as a result of the deviation?	N/A



2- Validation of corrections

Team conclusions	
2-1.Documentation from the PP	
2-1.1. Is the revised PDD with the corrections completed in clean and track change versions?	N/A
2-1.2. Has the supplemental documentation been submitted as appropriate?	N/A
2-2.Means of verification (Para 258 of the VVS)	
2-2.1. Determine whether the corrected information is an accurate reflection of actual project information.	N/A
2-2.2. Determine whether the corrected parameters are in accordance with the applied methodology and/or selected monitoring plan.	N/A



3- Validation of changes to the starting date of the crediting period of the Project Activity or CPA

Team conclusions	
3-1.Documentation from the PP or the CME	
3-1.1. Is a demonstration of no changes to the project activity or CPA that would result in a less conservative baseline provided?	N/A
3-1.2. Has supplemental documentation been submitted to demonstrate that substantive progress has been made by the project participants or the CME to start the project activity?	N/A
3-2.Assessment of the demonstration (Para 217 of the PS)	
3-2.1. Determine whether the baseline is affected by the delay in the starting day of the crediting period. If it is affected, verify if the new baseline is less conservative or not.	N/A
3-2.2. Assess if the PPs have implemented actions to start the project activity or CPA. List these actions and determine if the new start date of the crediting period can be met.	



4- Validation of permanent changes from the registered monitoring plan and/or monitoring methodology

Team conclusions	
4-1.Documentation from the PP	
4-1.1. Does the revised PDD contain a revised monitoring plan completed in clean and track change versions?	Yes. The revised PDD containing the revised monitoring plan was provided in both track change version and clean version.
4-1.2. Has the supplemental documentation been submitted as appropriate, especially when further explanation is necessary on the revised monitoring plan?	<p>The revised PDD containing the revised monitoring plan, the PPA and the Wind turbines connection diagram were provided to the team for review. The revision to the monitoring plan is summarized as below:</p> <ol style="list-style-type: none"> 1) The location of the main meter is specified as the on-site substation in section B.7.1 and B.7.2. 2) Four parameters are included in section B.7.1, i.e., $EG_{\text{export_total}}$ - Quantity of annual electricity exported to the grid by the project and other wind farm project, $EG_{\text{import_total}}$ - Quantity of annual electricity imported from the grid by the project and other wind farm project, E_{project} - Quantity of electricity generation from the project activity metered by the separate meters, and E_{others} - Quantity of electricity generation from other projects metered by the other separate meters, to obtain the Net electricity supplied to the grid by the project in period y (EG_y). This is confirmed as appropriate. 3) The determination of EG is specified as: $EG_y = EG_{\text{total}} * E_{\text{project}} / (E_{\text{project}} + E_{\text{others}})$ $EG_{\text{total}} = EG_{\text{export_total}} - EG_{\text{import_total}}$ 4) A diagram indicating all monitoring points is added in section B.7.2. This is confirmed to reflect the real practice. 5) In section B.7.2 the data monitoring procedure and the emergency treatment procedure are updated to adapt to the addition of monitoring meters. <p>Based on the document review and on-site inspection of the actual connection structure and metering system, the team confirmed that the revised monitoring plan reflects the real practice of</p>



	the project and can be implemented by the PP. All the installed meters have the accuracy level in line with the registered monitoring plan and will be calibrated following the calibration interval as per the registered PDD.
4-2. Level of accuracy (Para 263 VVS)	
4-2.1. Did the revision of the monitoring plan ensure that the level of accuracy in the monitoring and verification process was not reduced as a result of revision? 1) frequency of measurements 2) quality of monitoring equipment 3) calibration requirements 4) QA/QC procedures.	Yes. All the monitoring meters are in the same provisions applied to all the meters concerned related with the frequency of measurement and recording, accuracy class, calibration frequency, and QA/QC procedures. Therefore the proposed revision does not reduce the level of accuracy in the monitoring and verification process. The revision enhances monitoring and verification in a more complete manner reflecting the actual implementation of the monitoring with regard to the actual connection structure and metering system used and does not reduce completeness of the monitoring and verification process.
4-3. Completeness (Para 266 VVS)	
4-3.1. Ensure that the permanent changes are not likely to lead to a reduction in the accuracy of the calculation of emission reductions.	Yes. All the monitoring meters are in the same provisions applied to all the meters concerned related with the frequency of measurement and recording, accuracy class, calibration frequency, and QA/QC procedures. Therefore the proposed revision does not reduce the level of accuracy in the monitoring and verification process. The revision enhances monitoring and verification in a more complete manner reflecting the actual implementation of the monitoring with regard to the actual connection structure and metering system used and does not reduce completeness of the monitoring and verification process.
4-3.2. In case the permanent changes will lead to a reduction in the accuracy of the calculation of emission reductions, request the PPs to apply conservative assumptions or discount factors to the calculations to the extent required to ensure that emission reductions will not be over-estimated as a result of the permanent change.	N/A



4-4. Compliance with approved monitoring methodology (Para 264 VVS)	
4-4.1. If the proposed revision refers to a later version of the applied methodology, does the revised monitoring plan ensure that the application does not compromise the conservativeness in the monitoring and verification process and of the ER calculations?	N/A. The revision does not refer to a later version of the applied methodology.
4-5. Findings of previous verification reports	
4-5.1. If there are findings in the previous verifications related to the proposed revision of the monitoring plan, have the findings been taken into account?	The change of location of the main meter was identified during the second periodic verification (monitoring period: 01/04/2011 - 31/01/2012) by LRQA as reflected in the CL01 in the verification report. Considering that the change is out of control by the project owner, and the accuracy and completeness of the monitoring have not been impacted, a MP revision in relation to this was not requested in the second periodic verification. The change of monitoring provision with regard to addition of monitoring parameters and measuring meters was occurred in the third monitoring period since the operation of the other wind farm project on 02/04/2012.



5- Validation of changes to the project design of a registered project activity

Team conclusions	
5-1. Background (Section 12.8 of the PS)	
5-1.1. Identify concerns related to the conformity of the actual project activity and its operation with the registered PDD.	N/A
5-1.2. If the identified changes fall in the following, check the elements in 5-2 below. (a) Changes in the effective output capacity due to increased installed capacity or increased number of units, or installation of units with lower capacity or units with a technology which is less advanced than that described in the PDD (b) Addition of component or extension of technology (c) Removal or addition of one (or more) sites of a project activity registered with multiple sites (d) Different values of those actual operational parameters relevant to determination of emission reduction which are within the control of project participant and which result in the IRR passing the benchmark as described in the registered PDD. (Para 221 of the PS)	N/A



	Team conclusions
5-1.3. If the identified changes cause a project activity to no longer meet the criteria for small-scale CDM project activities, check the elements in 5-3 below. (Para 222 of the PS)	N/A
5-1.4. If the identified changes in the implementation of project activity result in the following, check the elements in 5-4 below. (a) the original methodology would no longer be applicable, or (b) another methodology would have been applicable, or (c) another baseline scenario would be more appropriate. (Para 221 of the PS)	N/A
5-2.Changes which may impact the additionality of the project activity	
5-2.1. Check the impact of the change on the additionality of the project activity established at the time of registration and the specific conditions (investment / costs variables, barriers, relevant regulations).	N/A
5-2.2. Review the investment analysis, if applicable, based on all original input data and check if the PPs have only modified the key parameters in the original spreadsheet calculations.	N/A
5-2.3. Check, if applicable, that the barriers are still valid under new circumstances, if only barriers were claimed to demonstrate additionality at the registration stage.	N/A
5-3.Changes in the scale of CDM project activity	



Team conclusions	
5-3.1. Check the changes against the applicable SSC criteria for Type I, Type II or Type III.	N/A
5-4.Changes which impact the applicability/application of baseline methodology	
5-4.1. Check the applicability and application of baseline methodology with which the project has been registered.	N/A



6- Validation of changes to the project design of a registered PoA

	Team conclusions
6-1. Changes allowed (Para 131 of the PCP)	
6-1.1. PoA boundary: Check that the change is only: i. to expand geographical coverage and/or ii. to includes additional host parties	N/A
6-1.2. Eligibility criteria: Check that these changes are under the circumstances indicated in the "Standard for Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoA"	N/A
6-1.3. .Addition of specific case CPA: i. Check that the PoA include more than one generic CPA-DD ii. Check that the new Specific CPA correspond to a generic CPA for which no specific CPA was submitted at the time of registration.	N/A
6-1.4. Application of provisions of the most recent version of the "Standard for sampling and surveys of for CDM PAs and PoAs"	N/A
6-2. Eligibility criteria	
6-2.1. Check that the CME has updated the Eligibility criteria for inclusion of CPAs in the PoA to reflect the changes above and has included them in new versions of PoA-DD and generic CPA-DD.	N/A