



VERIFICATION REPORT

THE KANSAI ELECTRIC POWER

Co., Inc.

VERIFICATION OF THE

SHANDONG HUANENG SHOUGUANG

49.5MW WIND FARM PROJECT

REPORT No.BVC/CHINA-VR/8454/2012

REVISION No.02

BUREAU VERITAS CERTIFICATION

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VERIFICATION REPORT

Date of first issue: 16/03/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: The Kansai Electric Power Co., Inc.	Client ref.: Mr. Naoyoshi KANONO

Summary:

Bureau Veritas Certification has conducted the 2nd periodic verification of Shandong Huaneng Shouguang 49.5MW Wind Farm Project, CDM Registration Reference Number 3391, owned by Huaneng Shouguang Wind Power Co., Ltd., which is located in Shouguang County, Weifang City, Shandong Province, P.R.China, and applying the methodology ACM0002 Version 09, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CLs, CARs and FARs), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipments being essential for generating emission reduction run reliably and are calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reductions are calculated without material misstatements, and the emission reductions verified totalize 94,409 tons of CO₂e for the monitoring period.

Our opinion relates to the Projects' GHG emission and resulting GHG emission reductions reported and related to the valid and registered project baseline, monitoring plan and its associated documents.

Reporting period: 25/12/2010 to 24/12/2011

Baseline emissions: 94,409 t CO₂ equivalents.

Project emissions: 0 t CO₂ equivalents.

Leakage emissions: 0 t CO₂ equivalents.

Emission Reductions: 94,409 t CO₂ equivalents.

Report No.: BVC-China/VR8454/2012	Subject Group: CDM
Project title: Shandong Huaneng Shouguang 49.5MW Wind Farm Project	
Work carried out by: Mr. Tim Wang Wei - Team Leader	
Internal Technical Review carried out by: Ms.Cheng Linglin	
Date of this revision: 18/08/2012	Rev. No.: 02
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Indexing terms

Work approved by:
Flavio Gomes

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DRR	Daily Reading Record
NCPG	North China Power Grid
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Green House Gas(es)
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
MRR	Monthly Reading Record
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual



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1. INTRODUCTION

The Kansai Electric Power Co., Inc. has commissioned Bureau Veritas Certification to verify the emissions reductions of its CDM project Shandong Huaneng Shouguang 49.5MW Wind Farm Project (hereafter called “**the Project**”) owned by Huaneng Shouguang Wind Power Co., Ltd. (the project owner, hereafter called “the PP”) at Shouguang County, Weifang City, Shandong Province, P.R.China.

This report summarizes the findings of the verification of the Project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1. Objective

In carrying out its verification work, the DOE shall ensure that the project activity complies with the requirements of paragraph 62 of the CDM modalities and procedures.

Based on the applicable requirements of paragraph 62 of the CDM modalities and procedures, this assessment shall:

- (a) Ensure that the project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- (b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs and verifiable and in accordance with applicable CDM requirements;
- (c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- (d) Evaluate the data recorded and stored as per the monitoring methodology.

1.2. Scope

The verification scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The verification is not meant to provide any consulting service towards the PPs. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3. GHG Project Description

The Project consists of 33 sets of Wind Turbine Generators (WTGs) with a unit installed capacity of 1.5MW, providing a total installed capacity of 49.5MW. The annual expected



electricity supplied to North China Power Grid (NCPG) is 96,478.8MWh and the annual estimated emission reductions are 101,765tCO₂e.

The Project has been registered on 19/07/2010 (UNFCCC ref. No. 3391) under approved CDM methodology ACM0002 Version 09 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". The Project has chosen the renewable crediting period in the registered PDD, the first crediting period is from 19/07/2010 to 18/07/2017.

Project title: Shandong Huaneng Shouguang 49.5MW Wind Farm Project
 UNFCCC ref number: 3391
 Registration Date: 19/07/2010
 Crediting Period: 19/07/2010 to 18/07/2017
 Monitoring Period: 25/12/2010 to 24/12/2011
 Project Participants: Huaneng Shouguang Wind Power Co., Ltd. (P.R. China)
 The Kansai Electric Power Co., Inc. (Japan)
 Methodologies used: ACM0002 Version 09
 Location of the Project: Shouguang County, Weifang City, Shandong Province, P.R.China
 Geo coordinates: Longitude: 118°56'59.636"~119°02'53.821"E,
 37°13'44.198"~37°16'02.668"N(WTGs)
 118°56'59.636"~118°57'11.300"E,
 37°14'14.110"~37°14'20.603"N(substation)
 UNFCCC link: <http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1265792990.64/view>

1.4. Verification Team and Internal Technical Reviewer

The verification team and internal technical reviewer consist of the following personnel:

FUNCTION	NAME	CODE HOLDER	TASK PERFORMED*
Team Leader	Mr. Tim Wang Wei	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Team Member	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Technical Specialist	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Internal Technical Reviewer (ITR)	Ms.Cheng Linglin	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Specialist supporting ITR	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

2. METHODOLOGY

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.



In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by CDM Executive Board at its 55th meeting on 30/07/2010 /7/. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix A to this report.

2.1. Review of Documents

The verification of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report (MR) version 03 dated 15/08/2012 /5/ submitted to the DOE. Qualitative information comprises information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

The monitoring report submitted by the project participant was also web hosted on the UNFCCC-CDM web site on 25/02/2012 and thus, was available in the public domain.

In addition to the monitoring documentation provided by the project participants, the DOE reviews:

- (a) The registered PDD, including the monitoring plan and the corresponding validation report /1//2/;
- (b) The monitoring reports and the corresponding verification reports of the previous monitoring periods /3/;
- (c) The applied monitoring methodology /6/;
- (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /8/;
- (e) Other information and references relevant to the project activity's resulting emission reductions national regulations) /9//10/.

2.2. Follow-up Interviews

On 13/03/2012, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Huaneng Shouguang Wind Power Co., Ltd. and Beijing Changjiang River International Holding were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Huaneng Shouguang Wind Power Co., Ltd. (the Project Owner)	<ul style="list-style-type: none"> ➤ Project Design and implementation ➤ Technical equipment, calibration and operation ➤ Monitoring Plan and management procedures ➤ Monitoring data ➤ Data uncertainty and residual risks (QA/QC) ➤ GHG Calculation ➤ Environmental Impacts ➤ Compliance with National Laws and Regulations
Beijing Changjiang River International Holding (the Consultant)	<ul style="list-style-type: none"> ➤ Monitoring Plan ➤ Monitored data and Monitoring Report ➤ GHG Calculations

2.3. Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the verification can either be seen as a non-fulfillment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, where:

- (a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- (b) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- (c) Issues identified in a FAR during validation or previous verification to be verified during verification have not been resolved by the project participants.

Forward Action Requests (FARs) are issued, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

Bureau Veritas Certification may also use the term Clarification Requests (CLs), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4. Internal Technical Review

The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the project activity.



The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that:

- The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer compiles clarification questions for the Team Leader and Verification Team and discusses these matters with Team Leader.

After the agreement of the responses on the 'Clarification Request' from the Team Leader as well as the PP(s) the finalized verification report is accepted for further processing such as uploading on the UNFCCC webpage.

3. VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in **2** Corrective Action Requests, and **2** Clarification Requests.

The CARs, CLs and FARs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVM paragraph.

3.1. Remaining issues from previous validation/verification (190)

All CARs and CLs raised were successfully closed during the validation stage and previous verification of the Project, no remaining issues were left.



3.2. Project implementation in accordance with the registered project design document (198)

Bureau Veritas Certification has performed an on-site visit and found that the Project has been put into operation and the electricity generated is supplied to NCPG according to the signed Power Purchase Agreement (PPA) /13/. 33 sets of WTGs with a unit capacity of 1.5MW, providing a total installed capacity of 49.5MW as described in the registered PDD have been in operation during the monitoring period. The WTGs used in the Project are a kind of IEC3 type one according to the provided WTG specification/12/, which are fully consistent with the registered PDD/1/

According to the implementation/operation log of the Project/14/, the Project started commissioning on 16/12/2008, and the implementation was not phased.

No notification or approval of changes has been requested before for the Project. During the site visit, no changes from the project activity as described in the registered PDD have been observed or identified. Hence there is no need to request for notification or approval of changes.

Information provided in the monitoring report is in accordance with that stated in the registered PDD. Further analysis of monitored parameters as reported in the monitoring report compared to those estimated in the PDD is developed in section 3.5 of this report.

[Power System]

As shown in the diagram of the power connection system /11/, the electricity generated by the Project is delivered to the gateway substation (Fengtai substation) through an 110kV line and then delivered to SGPG and then to NCPG.

[Metering System]

There are two bidirectional meters installed for the Project./11/

Meter (M1) was installed at the output side of the switching substation to measure the electricity supplied to and purchased from SGPG within NCPG by the Project.

Meter (M2) was installed at the output of main transformer at the project site to measure the electricity supplied to and purchased from the grid.

[Management and Operation]

The PP has operated the Project as per the registered PDD. The monitoring organization has been set up and all monitoring staffs have been trained./19/ Manual records of both meters are based on continuous measurement and monthly recorded by the PP. The grid company issues the sale receipts to the PP every month to confirm the electricity exported to and imported from the grid. Internal CDM QA/QC procedures/20/ and CDM monitoring internal training records/19/ have been provided and verified by validation team.



Corresponding to the paragraph 198 of VVM version 01.2, Bureau Veritas Certification can confirm that:



- The implementation of the Project is consistent with the registered PDD.
- The Project is operated as per the registered PDD by the PP.
- Information provided in the MR is in accordance with that stated in the registered PDD.

3.3. Compliance of the monitoring plan with the monitoring methodology (203)

✌ Corresponding to the paragraph 203 of VVM version 01.2, Bureau Veritas Certification has verified the validated monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QC/QA procedures as described in the registered PDD, and is able to confirm that the monitoring plan is in accordance with the approved methodology applied by the Project.

3.4. Compliance of monitoring with the monitoring plan (206)

Monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

[Parameters and information flow]

The parameters required by the monitoring plan and the way Bureau Veritas Certification has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters) including the values in the monitoring reports are described below:

Parameters monitored:

- (1) $EG_{out,y}$: on-grid electricity supplied to NCPG by the Project
- (2) $EG_{in,y}$: on-grid electricity purchased from NCPG by the Project for the plant operation

The net electricity supplied to the grid (EG_y) by the Project is the electricity exported to the grid minus the electricity imported from the grid by the Project which is measured by the bidirectional main meter. Therefore EG_y can be calculated as below:

$$EG_y = EG_{out,y} - EG_{in,y}$$

As described above, the meters have been installed in accordance with the registered PDD. The verification team has on-site checked the location of the meters against the diagram of power connection system and found them to be consistent.

The readings of M2 are continuously monitored and monthly recorded by the PP. The readings of M1 are continuously monitored and monthly recorded by the PP and the grid company. The readings of Meter M1 are based on continuous measurement and monthly frozen on monthly basis by the grid company. The cut-off time is 24:00 in the cut-off date in each month. The cut-off date is determined by the grid company and informed to the PP before it. The different cut-off dates in each month have no impact on the emission reductions claimed for the monitoring



period. The grid company provided the PP with the sale receipts monthly, which contain the electricity exported to and imported from the grid by the Project.

The verification team has verified the values provided in the monitoring report and ER spreadsheet against the relevant documented evidences i.e. the MRRs /15/ and the sale receipts /16/ and found them to be consistent with the evidences. The MRRs and the sale receipts can cover this monitoring period from 25/12/2010 to 24/12/2011.

Parameters determined ex-ante:

(1) EF_y , emission factor of the grid

The emission factor of the 1st crediting period of the Project has been determined ex-ante in the registered PDD. The emission factor used in the monitoring report has been verified against the PDD and found them to be consistent.

[Calibration]

During this monitoring period, the installed metering equipments have been operating well and were duly calibrated. The calibration records are shown in Table 2 below.

Table 2 The calibration records of the meters

Meter ID	Serial number	Accuracy	Calibration date	Validity	Calibration entity
M1	20070808020043	0.5S	07/06/2010	Yes	Weifang Power Company Meter Measuring Centre/18/
			04/06/2011		
M2	09100170220042	0.5S	07/06/2010	Yes	
			04/06/2011		

The monitoring plan requires that the meters should have accuracy of 0.5S and be calibrated periodically according to the relevant national standards.

The verification team has verified the calibration records and the accreditation certificates of the calibration entity. Both the meters meet the rated accuracy level as described in the monitoring plan and are in compliance with the industry standard *Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)* /9/. The calibration frequency fulfills the requirement as described in the monitoring plan and is in compliance with the national standard *Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999)* /10/.

☞ Corresponding to the paragraph 206 of VVM version 01.2, Bureau Veritas Certification can confirm that:

- The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.



- All parameters stated in the monitoring plan of the registered PDD have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified and found complete and consistent by checking the whole procedure for information aggregation.

3.5. Assessment of data and calculation of greenhouse gas emission reductions (209)

A complete set of data for the specified monitoring period is available.

The critical parameter used for the determination of the Emission Reductions is the net electricity supplied to the grid by the Project. The data pertaining to the above parameter are maintained in the identified records. All the data are in compliance with that stated in the Monitoring Report version 03.

As per the methodology ACM0002 Version 09 and the registered PDD, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions and leakage. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y - L_y$$

Where,

ER_y : Emission reductions

BE_y : Baseline emissions

PE_y : Project emissions

L_y : Emissions due to leakage

[Baseline emissions]

The baseline emissions are the baseline emission factor times the net electricity supplied to the grid. Therefore,

$$BE_y = EF_y * EG_y$$

EF_y : GHG emission factor of the NCPG, calculated ex-ante in the registered PDD as 1.0548 tCO₂e/MWh

EG_y : Net electricity supplied to the grid

The net electricity delivered to the grid (EG_y) can be calculated as:

$$EG_y = EG_{out} - EG_{in}$$

The verification team has cross-checked the values from the MRRs of M2/15/ with MRRs of M1 and then with the sale receipts /16/ for the period from 25/12/2010 to 24/12/2011. The conservative values are used for emission reductions calculation. The verified values are shown in the following Table 3 and 4.

Table 3 The verified electricity exported to the grid by the Project (MWh)

Period	Readings of M2	Readings of M1	Sale receipts	Verified EG _{out}
	A	B	C	Min(A,B,C)
25/12/2010-24/01/2011	10,373.44	10,310.08	10,310.08	10,310.08
25/01/2011-22/02/2011	4,161.52	4,143.04	4,143.04	4,143.04
23/02/2011-26/03/2011	11,215.60	11,142.56	11,142.56	11,142.56
27/03/2011-25/04/2011	10,984.16	10,901.44	10,901.44	10,901.44
26/04/2011-24/05/2011	10,474.64	10,422.72	10,422.72	10,422.72
25/05/2011-23/06/2011	7,018.00	6,985.44	6,985.44	6,985.44
24/06/2011-24/07/2011	5,699.76	5,670.72	5,670.72	5,670.72
25/07/2011-25/08/2011	4,753.76	4,739.68	4,739.68	4,739.68
26/08/2011- 23/09/2011	6,082.56	6,019.20	6,019.20	6,019.20
24/09/2011- 24/10/2011	5,040.72	5,024.80	5,024.80	5,024.80
25/10/2011- 23/11/2011	6,121.28	6,086.08	6,086.08	6,086.08
24/11/2011- 24/12/2011	8,425.12	8,363.52	8,363.52	8,363.52
Total	-	-	-	89,809.28

Table 4 The verified electricity imported from the grid by the Project (MWh)

Period	Readings of M2	Readings of M1	Sale receipts	Verified EG _{in}
	D	E	F	Max(D,E,F)
25/12/2010-24/01/2011	23.69	24.64	24.64	24.64
25/01/2011-22/02/2011	50.81	52.80	52.80	52.80
23/02/2011-26/03/2011	14.81	15.84	15.84	15.84
27/03/2011-25/04/2011	11.89	12.32	12.32	12.32
26/04/2011-24/05/2011	10.01	10.56	10.56	10.56
25/05/2011-23/06/2011	14.81	15.84	15.84	15.84
24/06/2011-24/07/2011	23.69	24.64	24.64	24.64
25/07/2011-25/08/2011	35.95	36.96	36.96	36.96
26/08/2011- 23/09/2011	25.36	26.4	26.4	26.40
24/09/2011- 24/10/2011	23.69	24.64	24.64	24.64
25/10/2011- 23/11/2011	27.26	28.16	28.16	28.16
24/11/2011- 24/12/2011	30.88	31.68	31.68	31.68
Total	-	-	-	304.48

$$EG_y = EG_{out} - EG_{in} = 89809.28 - 304.48 = 89504.80 \text{ MWh}$$

The baseline emissions of the Project are calculated as:

$$BE_y = EF_y * EG_y = 1.0548 \text{ tCO}_2\text{e/MWh} * 89504.80 \text{ MWh} = 94,409 \text{ tCO}_2\text{e}$$

**[Project emissions]**

The Project is a newly built wind power project, thus according to ACM0002 Version 09 the project emissions are zero.

[Leakage emissions]

No leakage needs to be considered according to ACM0002 Version 09.

[Emission reductions]

The emission reductions during the monitoring period from 25/12/2010 to 24/12/2011 are calculated as:

$$ER_y = BE_y - PE_y - L_y = 94,409 - 0 - 0 = 94,409 \text{ tCO}_2\text{e}$$

[Comparison of ERs]

The annual estimated emission reductions are 101,765 tCO₂e as per the registered PDD. The actual emission reductions claimed in the monitoring period are 94,409 tCO₂e. The actual emission reductions are less than the estimated value in the monitoring period. The variation is deemed to be reasonable.



Corresponding to the paragraph 209 of VVM version 01.2, Bureau Veritas Certification can confirm that:

- The data used for the determination of the emission reductions are available and monitored in accordance with the registered monitoring plan.
- The data used in anthropogenic emission reductions' calculation of this monitoring period have been verified and found consistent with those prescribed in the registered PDD.
- The appropriate methods and formulae for calculating baseline emissions, project emissions and leakages has been properly followed the methodology and registered PDD;
- The assumptions, emission factors and default values that were applied in the monitoring report and the calculations have been justified.



4. VERIFICATION OPINION

Bureau Veritas Certification has performed the 2nd periodic verification of Shandong Huaneng Shouguang 49.5MW Wind Farm Project, CDM Registration Reference Number 3391, owned by Huaneng Shouguang Wind Power Co., Ltd. which is located in Shouguang County, Weifang City, Shandong Province, P.R.China, and applying the methodology ACM0002 Version 09. The verification was performed based on the requirements set by the CDM and relevant guidance provided by CMP and the CDM Executive Board.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of Huaneng Shouguang Wind Power Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the Project on the basis set out within the project monitoring plan in the registered PDD. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the Project, is the responsibility of the management of the Project.

Bureau Veritas Certification has verified the project Monitoring Report version 03 dated 15/08/2012 for the reporting period as indicated below. Bureau Veritas Certification confirms that the Project is implemented as described in validated and registered project design documents. Installed equipments being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the Projects' GHG emissions and resulting GHG emission reductions reported and related to the validated and registered project baseline, monitoring plan and its associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms the following statement:

Reporting period:	25/12/2010 to 24/12/2011
Baseline emissions:	94,409 t CO ₂ equivalents
Project emissions:	0 t CO ₂ equivalents
Leakage emissions:	0 t CO ₂ equivalents
Emission Reductions:	94,409 t CO ₂ equivalents

Ms.Cheng Linglin
Internal Technical Reviewer
18/08/2012

Mr. Tim Wang Wei
Team Leader
18/08/2012



5. REFERENCES

Documents reviewed:

- /1/ Registered PDD version 04 dated 08/01/2010, UNFCCC ref no.3391
- /2/ Validation Report revision 01.4, dated 10/02/2010
- /3/ The monitoring report and corresponding verification report of 1st monitoring period
- /4/ Monitoring Report version 01, dated 20/02/2011
- /5/ Monitoring Report version 03, dated 15/08/2012
- /6/ ACM0002 Version 09 dated 13/02/2009
- /7/ Validation and Verification Manual Version 01.2 dated 30/07/2010
- /8/ Guidelines on completeness check of requests for issuance (EB48 Annex68)
- /9/ Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)
- /10/ Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999)
- /11/ Diagram of power connection system of the Project
- /12/ WTG Specification
- /13/ Power Purchase Agreement (PPA) signed with the grid company
- /14/ Implementation/operation log of the Project
- /15/ Monthly Reading Records of the Project
- /16/ Sale receipts issued by the grid company
- /17/ Calibration Records of the meters
- /18/ Certificate of metrological authorization to Weifang Power Company Meter Measuring Centre(Code:Lu Fa Ji(2009)No.D008) with the valid period from 01/01/2009 to 31/12/2011
- /19/ CDM and monitoring internal Training records
- /20/ Internal CDM QA/QC Procedures
- /21/ CDM Monitoring & Management Manual

Persons interviewed:

- The Kansai Electric Power Co.,Inc.
- /1/ Mr.Naoyoshi Kadono CDM manger
- /2/ Mr.Tomohiro Kanno Personnel
- Huaneng Shouguang Wind Power Co., Ltd.
- /3/ Mr.Xu Chengdong Operation
- Beijing Changjiang River International Holding
- /4/ Ms.Zhang Ping Consultant
- /5/ Ms.Tu Li Consultant



6. CURRICULA VITAE OF THE DOE'S VERIFICATION TEAM MEMBERS

Mr. Tim Wang Wei	Bureau Veritas Certification, China	Team Leader, Climate Change Lead Verifier, He holds a Master Degree in Environmental Science. Before joining BV in Feb.2009, he gained 4 and a half years of working experience in engineering and EIA for manufacturing enterprise in P.R.China. He obtained the certificates of CDM Verifier and ISO14001 Lead Auditor and received training in ISO 14064 in Bureau Veritas.
Ms.Cheng Linglin	Bureau Veritas Certification, China	Technical Reviewer, Climate Change Lead Verifier. She holds a Master Degree in Environmental Science and Engineering. Before joining BV in 2009, she gained over 2 years of research experience on air pollution control and 2 years of CDM technical experience in energy sector in P.R. China. She obtained the certificate of CDM Verifier, Lead Auditor for ISO14001. She has successfully completed the course assessment for ISO 14064:2006.

APPENDIX A: CDM PROJECT VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1. Compliance of the monitoring report with the guidelines for completing the monitoring report form					
A.1. Brief description of the project activity					
a. Is the description of the project activity to be presented in this section a brief summary of the detailed description given in the section .B.1 Implementation status of the project activity?	EB 54	Ann 34	Yes.	OK	OK
b. Does this description include:	EB 54	Ann 34			
i. Purpose of the project activity and the measures taken to reduce greenhouse gas emissions?	EB 54	Ann 34	<p>Yes.</p> <p>It is designed to generate electricity from wind, a clean and renewable resource and provide annual net on-grid power generation of 96.4788GWh and achieve 101,765tCO₂e GHGs reductions per annum.</p> <p>By avoiding operation of existing thermal power plants and future expansion of fossil fuel-based generation by the</p>	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			NCPG, the Project displaces part of thermal power in NCPG by making use of clean and renewable energy.		
ii. Brief description of the installed technology and equipments?	EB 54	Ann 34	Yes. 33 wind turbines with rated capacity of 1500kW.	OK	OK
iii. Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)?	EB 54	Ann 34	Yes. 15/04/2008 The starting date of construction 16/12/2008 The project began commissioning and then turned into full operation 19/07/2010 Registration date and starting date of the crediting period 19/07/2010-24/12/2010 The 1st monitoring period	OK	OK
iv. Total emission reductions achieved in this monitoring period?	EB 54	Ann 34	Yes. 94,409tCO ₂ e	OK	OK
A.2. Project Participants					
c. Are the project participants listed?	EB 54	Ann 34	Yes.	OK	OK
A.3. Location of the project activity					
d. Is complete information of the location of the project activity: town, city, country and GPS coordinates	EB 54	Ann 34	Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
provided?					
A.4. Technical description of the project					
e. Are a description of the technology applied in the project activity and detailed technical process, including diagrams provided?	EB 54	Ann 34	Yes,	OK	OK
A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity					
f. Are the complete reference of the methodology applied and tools whenever is applicable included?	EB 54	Ann 34	<p>ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002/ Version 09, Sectoral Scope: 01, EB45).</p> <p>CL-1</p> <p>Section A.5 of MR is silent about the reference of the applied methodology.</p> <p>CL-1 was closed out after the reference of the applied methodology was added in the revised MR.</p>	CL-1	OK
A.6. Registration date of the project activity					
g. Is the registration date of the project	EB 54	Ann 34	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity provided?			19/07/2010		
A.7. Crediting period of the project activity and related information (start date and choice of crediting period)					
h. Are the crediting period of the project activity and related information (start date and choice of crediting period) provided?	EB 54	Ann 34	Yes.	OK	OK
i. Does the description also include changes to the start date of the crediting period post-registration that have been accepted by the Board, when applicable?	EB 54	Ann 34	N.A.	OK	OK
A.8. Name of responsible person(s)/entity (ies)					
j. Is the contact information of the person(s)/entity(ies) responsible for completing the monitoring report form (CDM-MR) provided?	EB 54	Ann 34	Yes.	OK	OK
B.1. Implementation status of the project act					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
k. Does this section include a description of the implementation and operational status of the project as of this monitoring period in accordance with the latest version of the CDM Validation and Verification Manual (CDM-VVM)?	EB 54	Ann 34	Yes.	OK	OK
l. Does the description include inter alia:	EB 54	Ann 34			
i. The starting date of operation of the project activity? For project activities that consist of more than one site, the report shall clearly describe the status of implementation and starting date of operation for each site. For CDM project activities with phased implementation, the report shall indicate the progress of the proposed CDM project activity achieved in each phase.	EB 54	Ann 34	Yes.	OK	OK
ii. The information regarding the actual operation of the project activity during this monitoring period, including information on special events, for example overhaul times, downtimes of equipment, exchange	EB 54	Ann 34	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
of equipment, etc?					
iii. A brief description of: (i) events or situations that occurred during the monitoring period, which may impact the applicability of the methodology, and (ii) how the issues resulting from these events or situations are being addressed?	EB 54	Ann 34	Yes.	OK	OK
<i>B.2. Revision of the monitoring plan</i>					
m. Is it indicated if the monitoring plan has been revised?	EB 54	Ann 34	No.	OK	OK
n. Is the date of approval, if revised, included?	EB 54	Ann 34	N.A.	OK	OK
<i>B.3. Request for deviation applied to this monitoring period</i>					
o. Is any deviation applied to this monitoring period indicated?	EB 54	Ann 34	No.	OK	OK
p. Is the reference number, if any deviation applied, included?	EB 54	Ann 34	N.A.	OK	OK
<i>B.4. Notification or request of</i>					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<i>approval of changes</i>					
q. Is any notification or request of approval of changes from the project activity as described in the registered CDM-PDD indicated?	EB 54	Ann 34	No.	OK	OK
r. Is the date of approval, if applicable, included?	EB 54	Ann 34	N.A.	OK	OK
<i>C. Description of the monitoring system</i>					
s. Is a description of the monitoring system provided?	EB 54	Ann 34	Yes.	OK	OK
t. Does this section include data collection procedures (information flow including data generation, aggregation, recording, calculation and reporting), organizational structure, roles and responsibilities of personnel, and emergency procedures for the monitoring system?	EB 54	Ann 34	Yes.	OK	OK
u. Does this include line diagrams showing all relevant monitoring points?	EB 54	Ann 34	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<i>D. Data and parameters</i>					
v. Does this section include parameters used to calculate baseline, project, and leakage emissions as well as other relevant parameters required by the approved methodology and the monitoring plan; and specific information on how data and parameters have been monitored during the monitoring period?	EB 54	Ann 34	Yes.	OK	OK
w. Are data that is determined only once for the crediting period but are used after registration of the project activity included here under section D.1.?	EB 54	Ann 34	Yes.	OK	OK
x. For each parameter the following information, using the tables provided, is provided:	EB 54	Ann 34			
i. Value of monitored parameter in the period for the purpose of calculating emission reductions? To report multiple values, a table may be used and included in this monitoring report or include references to spreadsheet. For default value	EB 54	Ann 34	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
(such as an IPCC value), where it is ex-post confirmed, the most recent value shall be applied.					
ii. Description of the equipment used to monitor each parameter, including details on accuracy class, and calibration information (frequency, date of calibration and validity), if applicable as per monitoring plan?	EB 54	Ann 34	Yes.	OK	OK
iii. Measuring and recording method: how the parameters are measured/calculated, specifying the measurement and recording frequency?	EB 54	Ann 34	Yes.	OK	OK
iv. Source of data: logbooks, daily records, surveys, etc?	EB 54	Ann 34	Yes.	OK	OK
v. Where relevant, the calculation method of the parameter?	EB 54	Ann 34	Yes.	OK	OK
vi. The QA/QC procedures applied (if applicable per monitoring plan)?	EB 54	Ann 34	Yes.	OK	OK
vii. Include information about appropriate emission factors, IPCC	EB 54	Ann 34	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
default values and any other reference values that have been used in the calculation of emission reductions?					
<i>E.1. Baseline emissions calculation</i>					
y. Does this section include all formulae used and description to calculate the baseline emissions applying actual values?	EB 54	Ann 34	Yes.	OK	OK
z. Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	Yes.	OK	OK
<i>E.2. Project emissions calculation</i>					
aa. Does this section include all formulae used and description to calculate the project emissions applying actual values?	EB 54	Ann 34	N.A. as no project emissions according to ACM0002 Version09 and registered PDD.	OK	OK
bb. Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	N.A.	OK	OK
<i>E.3. Leakage calculation</i>					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
cc. Does this section include all formulae used and description to calculate the leakage applying actual values?	EB 54	Ann 34	N.A. as no leakage needs to be considered.	OK	OK
dd. Was a table used and included in this monitoring report or include references to spreadsheet?	EB 54	Ann 34	N.A.	OK	OK
E.4. Emission reductions calculation / table					
ee. Does this section include the formulae used to calculate the emission reductions and the total of the emission reductions achieved during the monitoring period?	EB 54	Ann 34	Yes.	OK	OK
i. Total baseline emissions:	EB 54	Ann 34	Yes.	OK	OK
ii. Total project emissions:	EB 54	Ann 34	Yes.	OK	OK
iii. Total leakage:	EB 54	Ann 34	Yes.	OK	OK
iv. Total emission reductions:	EB 54	Ann 34	Yes.	OK	OK
E.5. Comparison of actual emission reductions with estimates in the CDM-PDD					

VERIFICATION REPORT



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ff. Does this section include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD?	EB 54	Ann 34	Yes. The actual values are lower than the estimated value in PDD.	OK	OK
<i>E.6. Remarks on difference from estimated value in the PDD</i>					
gg. Is an explanation of the cause of any increase in the actual emission reductions achieved during the current monitoring period (e.g. higher water availability, higher load plant factor, etc), including all information (i.e. data and/or parameters) that is different from that stated in the registered CDM-PDD provided?	EB 54	Ann 34	N.A.	OK	OK
<i>2. Project implementation in accordance with the registered project design document</i>					
a. Are all physical features of the proposed CDM project activity proposed in the registered PDD in place?	VVM	196	Yes. All facilities and equipments including 33 sets of WTGs with a total capacity of 49.5MW are in place and in generation during the monitoring period. Unit capacity of each WTG is	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			1.5MW. The WTGs used in the Project are a kind of IEC3 type one according to the provided specification, which are fully consistent with the registered PDD.		
b. Have the project participants operated the proposed CDM project activity as per the registered PDD?	VVM	196	Yes. The Project is operated by Huaneng Shouguang Wind Power Co., Ltd (the PP). The PP has operated the CDM project activity as per the registered PDD. The electricity generated has been delivered properly to the grid as per the PPA signed with the grid company.	OK	OK
c. Was an on-site visit conducted?	VVM	196	Yes. The on-site visit of 2 nd periodic verification has been conducted on 13/03/2012. Tim Wang Wei, CDM Lead verifier of Bureau Veritas Certification The audit purpose and methodology were briefed in the opening meeting participated by the following persons. Mr.Naoyoshi Kadono, CDM manager of The Kansai Electric Power Co. Inc. Mr.Tomohiro Kanno, Personnel of The Kansai Electric Power Co. Inc. Ms.Tu Li, Consultant Ms.Zhang Ping Consultant Mr.Xu Chengdong Operation of Huaneng Shouguang	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Wind Power Co.,Ltd.		
d. If not, justify the rationale of the decision.	VVM	196	N.A.	OK	OK
e. Does the implementation or operation of CDM project activity conform with the description contained in the registered PDD?	VVM	197	No.	OK	OK
f. If not, which are the potential impacts due to these changes, according to the relevant guidelines established by the Executive Board (EB48-§73)?	VVM	197	N.A.	OK	OK
g. Was any change identified close to the boundary of the project activity but outside it?	VVM	197	No.	OK	OK
h. If yes, which are the potential impacts due to these changes?	VVM	197	N.A.	OK	OK
i. Was a notification or a request for approval of changes from the project activity as described in the registered PDD submitted prior to the conclusion of the verification/certification for the	VVM	197	N.A.	OK	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
corresponding?					
3. Compliance of the monitoring plan with the monitoring methodology					
a. Is the validated monitoring plan in accordance with the approved methodology applied by the proposed CDM project activity?	VVM	200	Yes. The registered Monitoring Plan (MP) in accordance with the methodology ACM0002 version 09 has been applied by the CDM project activity.	OK	OK
b. If no, was a request for revision of the monitoring plan was done? (The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by CDM Executive Board)	VVM	201	N.A.	OK	OK
c. Are there any monitoring aspects of the project activity that are not specified in the methodology, particularly in the case of small-scale methodologies(e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	VVM	202	No.	OK	OK
4. Compliance of monitoring with the					

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<i>monitoring plan</i>					
a. Have all issues identified in the validation report to be verified during verification been resolved by the project participant and are there any open issues identified in the previous verification?	VVM	190	Yes.	OK	OK
b. Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	VVM	205	<p>CL-2</p> <p>Clarification is required on whether the monitoring was implemented in accordance with the monitoring plan. The monitoring plan states that to monitor the electricity export to and purchase from the grid, "the reading of meter M2 is monitored continuously and recorded monthly, and then cross-checked with the reading of meter M1", while, according to MR, the net electricity export was monitored by M1 and crosschecked with M2.</p> <p>CL-2 was closed out after the description of monitoring system was updated and the clarification was provided by the PP and verification team can confirm that the monitoring is consistent with the monitoring plan.</p> <p>The MP and the methodology ACM0002 version 09 have been followed by the PP.</p>	CL-2	OK
c. Have all parameters stated in the monitoring plan, the applied methodology and relevant CDM	VVM	205			

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Executive Board decisions been sufficiently monitored and updated as applicable, including:					
i. Project emission parameters?	VVM	205	Yes. The Project is a new built wind power project, thus the project emissions of the project are zero according to the ACM0002 version 09.	OK	OK
ii. Baseline emission parameters?	VVM	205	Yes. The net electricity delivered to the grid by the Project (EG_y) is used for baseline emission calculation. $EG_y = EG_{out,y} - EG_{in,y}$ $EG_{out,y}$, On-grid electricity supplied to NCPG by the Project. $EG_{in,y}$, On-grid electricity purchased from NCPG by the Project for the plant operation. The parameters $EG_{out,y}$ and $EG_{in,y}$ are monitored by the bidirectional meters M1 and M2.	OK	OK
iii. Leakage parameters?	VVM	205	Yes. According to the registered PDD and the methodology ACM0002 version 09, not leakage needs to be considered.	OK	OK
iv. Management and operational system: the responsibilities and authorities for monitoring and	VVM	205	Yes. The PP has the responsibility of overall monitoring, which has established a monitoring team for monitoring of power	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?			<p>generation, maintenance and operation of the CDM Project activity. All the records related to generation and maintenance have been satisfactorily maintained.</p> <p>Responsibilities have been allocated to the well-trained monitoring staff as per registered Monitoring Plan.</p> <p>The QA / QC procedures are part of management system and are documented in management procedures.</p> <p>The records and all relevant paper based information are collected and archived by the operation department for internal audit.</p> <p>The responsibilities and the procedures included in the Monitoring and Management Manual have been verified.</p>		
d. Is the accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan?	VVM	205	<p>The meters M1 and M2 were calibrated by Weifang Power Company Meter Measuring Centre. The accuracy of the meters is 0.5S. The certificates of the calibration and calibrator have been provided by the PP and verified by validation team during the on-site visit. It is consistent with the monitoring plan.</p> <p>CAR-1</p> <p>The calibration date indicated in the MR(05/06/2011) is not fully consistent with the provided calibration records(04/06/2011).</p> <p>CAR-1 was closed out after the correct calibration date was indicated in the revised MR.</p>	CAR-1	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. Are monitoring results consistently recorded as per approved frequency?	VVM	205	Yes. The meters have been continuously measured and monthly recorded consistent with the MP.	OK	OK
ii. Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	VVM	205	Yes. The QA/QC procedures have been documented in the Monitoring and Management Manual and applied in accordance with the MP.	OK	OK
iii. Has the calibration of those measuring equipments that have an impact on the claimed emission reductions been conducted by the project participants at a frequency specified in the applied monitoring methodology and/or the monitoring plan?	EB 52	Ann 60	No.	OK	OK
5. Assessment of data and calculation of greenhouse gas emission reductions					
a. Is a complete set of data for the specified monitoring period is available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in	VVM	208	Yes. A complete set of the sale receipts and reading records have been provided and verified during the on-site visit.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
accordance with the registered monitoring plan, the DOE shall opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation prior to submitting request for issuance if appropriate).					
b. Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	VVM	208	Yes. The information provided in the monitoring report has been found fully consistent with the sale receipts issued by the grid company, monthly reading records, and implementation/operation log.	OK	OK
c. Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	VVM	208	The calculation of baseline emissions, project emissions and leakage has been carried out in accordance with monitoring plan and applied the methodology document. CAR-2 The emission reductions to be claimed for the monitoring period are not considered conservative due to the decimal in the calculation. CAR-2 was closed out after the conservative value of 94,409tCO ₂ e to be claimed for the monitoring period was indicated in the revised MR.	CAR-2	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d. Have any assumptions used in emission calculations been justified?	VVM	208	No. There are no assumptions in emission calculations.	OK	OK
e. Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVM	208	Yes. The emission factor in the MR is 1.0548tCO ₂ /MWh, which is the same as described in the registered PDD.	OK	OK

Table 2 Resolution of Corrective Action /Clarification / Forward Action Requests

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR-1: The calibration date indicated in the MR(05/06/2011) is not fully consistent with the provided calibration records(04/06/2011)	4.d	The calibration date has been revised correctly in accordance with meter calibration records.	Validation team has checked the updated calibration date against the calibration records and found consistent. Hence CAR-1 is closed.
CAR-2: The emission reductions to be claimed for the monitoring period are not considered conservative due to the decimal in the calculation.	5.c	After conservative decimal calculation, the emission reduction during monitoring period is 94,409tCO ₂ e rather than 94,410t CO ₂ e. The MR has been revised accordingly.	The conservative value of 94,409 tCO ₂ e has been indicated and has been claimed for the monitoring period. Hence CAR-2 is closed.
CL-1: Section A.5 of MR is silent about the reference of the applied methodology.	1.f	The approved monitoring methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002/ Version 09) and Tool to calculate emission factor for an electricity system (version 01.1) have been applied for the project. Relevant information has been added in the section A.5. Please check it.	The reference of the applied methodology has been added in Section A.5 of MR. Hence CL-1 is closed.
CL-2: Clarification is required on whether the monitoring was implemented in accordance with the monitoring plan.	4.b	As the registered PDD of the monitoring plan states that "to monitor the electricity export to and purchase from the grid, the reading of meter M2 is monitored continuously and	Verification team has verified the actual monitoring of the Project against the monitoring plan and



VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
<p>The monitoring plan states that to monitor the electricity export to and purchase from the grid, "the reading of meter M2 is monitored continuously and recorded monthly, and then cross-checked with the reading of meter M1", while, according to MR, the net electricity export was monitored by M1 and crosschecked with M2.</p>		<p>recorded monthly, and then cross-checked with the reading of meter M1". This description was made for the meter M1 is owned and operated by the grid company and meter M2 is owned by the project owner, and as the DOE during the Validation procedure considered that the Monitoring methodology gives the requirements just to project participant, thus the meter M2 was used as a measuring meter by the pp in the monitoring plan, not the meter M1. However, in the monitoring plan, it also has clearly pointed out that the source of the EGout,y and EGIN,y is measured from the meter M1.</p> <p>Therefore, in order to keep consistent with the data collection system conducted by the PP, we have made some minor revision in the monitoring report. The project owner measure the M2 in the project site daily, then crosschecked with the monthly reading records of the M1 installed in the substation of the grid company, and after checking the readings, the sales receipts are issued in according with the readings of the M1 and M2</p>	<p>confirms that they are consistent. The description of the monitoring system has been updated and it is clear that the no inconsistency happens.</p> <p>Hence CL-2 is closed.</p>



VERIFICATION REPORT

Bookmark

Contract No.	8454/2012
Project title	Shandong Huaneng Shouguang 49.5MW Wind Farm Project
Ref number	3391
Period number	2nd
Monitoring period	25/12/2010 to 24/12/2011
MR final version	03
MR final date	15/08/2012
PDD version	04
PDD date	08/01/2010
Revised MP approval date	dd/mm/yyyy
Revised PDD acceptance date	dd/mm/yyyy
Methodology A and version	ACM0002 Version 09
Methodology B and version	ACM000X Version XX
Registration date	19/07/2010
Crediting period	19/07/2010 to 18/07/2017
MR Publication date	25/02/2012
Site visit date	13/03/2012
VR Sign-off date	18/08/2012



VERIFICATION REPORT

BE	94,409
PE	0
LE	0
ER	94,409
Project owner	Huaneng Shouguang Wind Power Co., Ltd.
Project buyer	The Kansai Electric Power Co., Inc.
Consultant	Beijing Changjiang River International Holding
Client	The Kansai Electric Power Co., Inc.
Project location	Shouguang County, Weifang City, Shandong Province, P.R.China
Grid	NCPG
EG	89504.80
EF_grid	1.0548
Calibration entity A	
Calibration entity B	
Team Leader	Mr. Tim Wang Wei
Team Member	Ms. TM TM
Technical Reviewer	Ms.Cheng Linglin