



**ASSESSMENT OPINION ON  
POST-REGISTRATION CHANGES**

Yueyang Kaidi Green Energy Development Co.,  
Ltd

Hunan Yueyang Kaidi Biomass Power Project

UNFCCC Ref. No: 3065

Report No. 12012279-1

China Environmental United Certification Center Co., Ltd (CEC)  
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<b>Date of First Issue</b>	<b>Project No.</b>		
22/05/2013	12012279-1		
<b>Approved by</b>	<b>Organizational Unit</b>		
SONG Tiedong	China Environmental United Certification Center Co., Ltd (CEC)		
<b>Client</b>			
Yueyang Kaidi Green Energy Development Co., Ltd			
<b>Project Name:</b> Hunan Yueyang Kaidi Biomass Power Project <b>Host Party:</b> P.R.China <b>Methodology:</b> ACM0002 ver. 10, ACM0006 ver. 9 <b>GHG Reducing Measure/Technology:</b> biomass power generation <b>ER Estimate:</b> 192,849 tCO <sub>2</sub> e annual average  <b>Size:</b> <input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale  <b>Validation Requirement:</b> <input type="checkbox"/> Temporary deviation from the monitoring plan and/or monitoring methodology <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Permanent changes from the monitoring plan or monitoring methodology <input checked="" type="checkbox"/> Changes to the project design of a registered project activity  Post registration change: <input type="checkbox"/> Prior approval track <input checked="" type="checkbox"/> Issuance track (Note: applicable to situations in Appendix 1 of PS)			
<b>Report No.</b>	<b>Date of this Revision</b>	<b>Rev.No.</b>	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organizational unit <input type="checkbox"/> Limited distribution <input type="checkbox"/> Unrestricted distribution
12012279-1	05/08/2013	02	
<b>Report Title</b>			
Hunan Yueyang Kaidi Biomass Power Project			
<b>Work Carried out by</b>			
QIN Boya, XU Linghua, LIU Yaotian, SONG Quanbo			
<b>Work Reviewed by</b>			
YIN Yun, CUI Xiaodong			



## 1. Introduction

### 1.1 Objective

CEC performs this validation of the post-registration changes of the project in accordance with the PCP, PS, VVS and other UNFCCC criteria. The original project design is the registered PDD of the registered CDM project “Hunan Yueyang Kaidi Biomass Power Project” with Ref. No. 3065. The purpose of this validation is to assess the post-registration changes of the project by an independent third party in order to confirm that the changes meet the applicable CDM requirements and the identified criteria.

### 1.2 Scope

The scope of the validation is defined as an independent review of the PDD, 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 other associated interpretations. The changes are identified during the first verification. The findings of the verification have been taken into account.

The validation is not meant to provide any consulting towards the client. However stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

### 1.3 Project Description

This project has been registered under UNFCCC with Ref. No. 3065 on 31/12/2010 with the first crediting period from 01/01/2011 to 31/12/2017. The first monitoring period covers from 01/01/2011 to 31/12/2011.

## 2. Methodology

### 2.1. Designation of the Assessment Team

According to the designation requirements on the assessment team in the CDM accreditation standards of Executive Board, and following requirements from the technical scopes and professional experiences in the sectoral scopes, CEC designated an assessment team.

It is required that the qualification with respect to the sectoral scope linked to the methodology has to be covered by the assessment team.

The assessment team consists of the following members:

Table 1: List of the assessment team

Verification team	Role	Qualification	Specific scope	Participated in the on-site visit
QIN Boya	Team Leader	Auditor	√	√
XU Linghua	Team Member	Auditor	--	√
LIU Yaotian	Team Member	Auditor	--	√
SONG Quanbo	Team Member	Auditor	--	√

Table 2: List of technical reviewer



Technical reviewer	Role	Specific scope
YIN Yun	Technical reviewer	√
CUI Xiaodong	Technical reviewer	--

Qin Boya is a lead Greenhouse Gas(GHG) assessor. She has attended various internal and external training courses on EMS, CDM related knowledge and low carbon development training since 2008. She has participated in and finished over 20 validation/verification CDM/VCS/GS project activities and programme of activities(PoAs) both in China and abroad in the areas of hydropower, wind power, biomass power generation as well as CFL distribution PoAs. Most of the projects are in sectoral scope 1 (energy industries), which gives her abundant experience in renewable energy sector. Besides CDM auditing, Ms.QIN has participated in the assessment of hydroelectric projects against the criteria set by the World Commission on Dams.

Xu Linghua is a lead Greenhouse Gas(GHG) assessor. Ms. Xu worked on environmental monitoring, waste water treatment, and quality control of the adhesive product for over 20 years. She is an experienced senior EMS auditor with over 10 years' accreditation organization working experience, who has completed various CEC CDM training courses and technology trainings. Ms. XU has participated in over 30 validation/verification CDM projects in the areas of hydropower, wind power and biomass power generation. Most of the projects are in sectoral scope 1 (energy industries), which gives her abundant experience in renewable energy sector.

Liu Yaotian is a lead Greenhouse Gas(GHG) assessor. She has attended extensive internal and external training courses on EMS, CDM and CDM related knowledge since 2006. She has participated in and finished over 20 validation/verification CDM/VCS projects in the areas of hydropower and wind power. Most of the projects are in sectoral scope 1 (energy industries), which gives her abundant experience in renewable energy sector.

Song Quanbo is a lead Greenhouse Gas(GHG) assessor. He worked in environmental protection research and EMS auditing area as a senior EMS auditor for over 10 years. He has involved in CDM work from 2009 and completed various CEC CDM training courses. Mr. Song has participated in several validation/verification CDM projects which are mainly in sectoral scope 1 (energy industries).

Yin Yun is a lead Greenhouse Gas(GHG) assessor. She worked in Metallurgical Industry for 17 years as technician and electric engineer, and later in technical management position for over 10 years. Since 2007, Ms. Yin has been involved in various CEC CDM training courses, and she is also a qualified senior EMS auditor, and has participated in over 30 validation/verification CDM projects in the areas of hydropower, wind power, waste heat recovery and biomass power generation, she has extensive experience in renewable energy sector in sectoral scope 1 (energy industries).

Cui Xiaodong is a lead Greenhouse Gas(GHG) assessor. He has attended various internal and external training courses on EMS, energy audit, CDM related knowledge and GHG accounting related courses since 2009. He has participated in and finished over 30 validation/verification CDM/VCS projects both in China and abroad in the areas of hydropower, wind power and biomass power generation.

## 2.2. Document Review

The revised PDD (version 05) submitted by the client and additional background documents were reviewed against applicable additionality and methodological requirements as an initial step of the assessment process.

According to the requirement of the EB, the PPs have applied the latest PDD template under the VVS tract, while the registered PDD (version 04) was under VVM tract. So the validation team shall also check if the information in the revised PDD has any material variation with that in the registered PDD.

The document review involves:



- 1) A review of data and information;
- 2) Cross checks between information provided in the PDD and information from sources other than those used, if available, CEC's sectoral and local expertise and if necessary, independent background investigations;
- 3) The findings of the first verification.

### **2.3. On-site Assessment and Follow-up Interviews**

On 23/08/2012, CEC performed a physical site inspection and on-site interviews with project stakeholders to:

- Confirm the implementation, operation and monitoring of the modified project activity as per the revised PDD;
- Assess the impacts of the actual changes on the compliance of the monitoring plan, the applied monitoring methodology and tools and/or the level of accuracy of the monitoring activity.

### **2.4. Internal Quality Control**

The assessment opinion underwent a technical review before being submitted to the PP and the EB according to CEC internal procedure. The technical reviewers were not part of the assessment team, and the technical review was independently of the assessment team.

After reviewing and confirming by the technical reviewers, the draft FVR was finalized and then sent for completeness check carried out by Quality Assurance Management Division (QAD). After correction and confirmed by QAD, the report was verified by the Director, and finally the report will be approved by the Chairman of Board.

After confirmation of the PP, the assessment opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

## **3. Validation Findings**

### **3.1. Description of the Changes**

#### **3.1.1. Temporary deviations from the registered monitoring plan and/or monitoring methodology**

Not applicable.

#### **3.1.2. Corrections**

The name of manufacturer (NanJing Steam Turbine(Group) Co., Ltd) for generator was mistyped as 'NanJing Steam Turbine(Group) Co.,' in Table A-2 of registered PDD, which is corrected in the updated PDD;

#### **3.1.3. Changes to the start date of the crediting period**

Not applicable.



#### 3.1.4. Permanent changes from the registered monitoring plan or monitoring methodology

Not applicable.

#### 3.1.5. Changes to the project design of a registered project activity

The main changes of the registered PDD are as follows:

1. The types of biomass residues used in this monitoring period is changed from "rice husk, rice straw, oil seed rape straw, cotton straw, maize straw and wheat straw" as described in the registered PDD to be the actual types of used biomass: rice husk, rice straw, maize straw, wood chips, branches and barks;
2. The average loading capacity of the trucks used to transport the biomass is changed from the estimated value of 3t in the registered PDD to the actual value of 10.7t.

In addition, in order to reflect the change of the Project Participant, the PDD was revised to reflect that Camco International Limited was authorized to participate in this project, and it was also that revised that Switzerland was added as a Party involved in the project. This request had been approved by the UNFCCC on 05/05/2011.

According to the Standard for application of the global warming potentials to Clean Development Mechanism project activities and programmes of activities for the second commitment period of the Kyoto Protocol (version 01.0) issued on 13/09/2012, the PPs voluntarily updated the global warming potential for CH<sub>4</sub> in the second commitment period (from 01/01/2013 onwards) to be 25.

### 3.2. Validation of the Changes

#### 3.2.1 Temporary deviations from the registered monitoring plan and/or monitoring methodology

Not applicable.

#### 3.2.2 Corrections

By means of checking the nameplates and purchasing contract, it is confirmed that the name of manufacturer is NanJing Steam Turbine(Group) Co., Ltd. as corrected in the revised PDD, which is an accurate reflection of actual project information. And this information do not affect the applicability of the applied methodologies and monitoring plan.

#### 3.2.3 Changes to the start date of the crediting period

Not applicable.

#### 3.2.4 Permanent changes from the registered monitoring plan or monitoring methodology

Not applicable.

#### 3.2.5 Changes to the project design of a registered project activity

- 1) Assessment of when the changes occurred

For the two changes (biomass residue types and truck loading capacity) occurred since the start date of the project, which is 28/09/2009.



## 2) Assessment of the reasons for these changes taking place

For the two changes (biomass residue types and truck loading capacity) occurred because of the real operation situation is different with the previous estimation.

When the biomass collection of the project started, biomass residue suppliers tend to supply the surplus wood chips and bark from nearby forest and wood process factories, which was not considered in the FSR. Considering the oil seed rape, cotton, and wheat production amount is not as much as the estimation in the FSR, and the difficulty for collection of these kinds of straws is larger than other types of biomass residues, the suppliers actually do not supply the straws of oil seed rape, cotton, and wheat to the project.

And the transport vehicles actually used by local biomass residue suppliers are bigger than the estimation in the FSR, which is more economical for the suppliers.

## 3) Assessment of whether the changes would have been known to the project participants prior to registration of the project activity

The registered PDD was submitted for registration for the first time on 20/10/2009, in which the biomass types were estimated to be: rice husk, rice straw, oil seed rape straw, cotton straw, maize straw and wheat straw, and the average loading capacity of the trucks was estimated to be 3t. The information was sourced from the approved FSR. The changes of biomass types and truck capacity occurred from the start of the operation of the project on 28/09/2009, so it might have been known to the project participants prior to registration of the project activity. However at that time the project was just on a trial start period, the project owner had not known the detailed information of the actual situation, so the information of FSR was still used.

## 4) Assessment of how the changes may impact the overall operation/ability of the project activity to deliver emission reductions as stated in the PDD

After the changes, the estimated emission reduction is recalculated in the revised PDD, the data flow and calculation process is validated by the validation team. Consequently, the estimated total GHG emission reduction in the first crediting period is changed from 1,339,545 tCO<sub>2</sub>e in the registered PDD to be 1,349,940 tCO<sub>2</sub>e in the revised PDD. The overall emission reduction ability is increased slightly due to more accurate data is applied.

## 5) The changes do not adversely impact any of the following thus do not require prior approval by the Board:

- The additionality of the project activity;

Considering that the changes do not affect the prior consideration of CDM, the alternative baseline scenarios, and the benchmark rate, the only affected additionality contents are project IRR and sensitive analysis. The barrier claimed to demonstrate the additionality of the project in the registered PDD is investment analysis, the project participants have demonstrated that the barriers are still valid under the actual circumstances. The demonstration process is as follows:

Applying the actual biomass fuel purchase price and actual net calorific values of each type of biomass residues, prices for each type of the biomass residues on energy basis is recalculated. As shown in the below table, the prices on energy basis for each type of the biomass residues utilized by the project are all higher than the price used in the registered PDD. The price for each





type of the biomass residues on energy basis in the registered PDD is crosschecked using the original data from the registered IRR calculation spreadsheet and ER calculation spreadsheet, the method is as follows:

Average price= Fuel Expenditure/Total wet weight/ lowest NCV of all types of biomass residues

=102,135,000RMB/(195,600t+175,800t)/11.883GJ/t=23.142 RMB/GJ

Table 3: prices for each type of the biomass residues on energy basis

Biomass Type	rice husk	Rice straws	Maize straws	Wood chips	Branches	Barks
NCV(GJ/t)	12.86	11.18	11.35	11.26	11.29	11.32
Price from invoice (RMB/t)	330	298	294	312	300	275
Prices of biomass residues utilized on energy basis (RMB/GJ)	25.66	26.65	25.90	27.71	26.57	24.29
Registered PDD	23.142 RMB/GJ (lowest NCV in the PDD is conservatively used)					

Therefore, it could be deduced that the actual project IRR is lower than the estimation in the registered PDD.

For accuracy, the PP re-calculated the project IRR using the actual values of the input parameters, calculation shows that the IRR is too low to have a normal result. So the NPV of the project is calculated, and it showed that the NPV is -511,091,870 RMB (for 48MW scenario), which is below zero. So the project is still additional when analyzed using actual input values.

As to the sensitive analysis, six parameters were selected in the registered PDD. The changes do not have impact on four of selected parameters: Static total investment, Equivalent operation hour at full load, Electricity tariff and Heat Price. The two affected parameters are: Biomass Cost and Total O&M Cost. Considering that the actual prices for each type of the biomass residues on energy basis is higher than the registered PDD, the value of both Biomass Cost and Total O&M Cost are higher than the applied value in the registered PDD, so the project IRR will still below the benchmark. For accuracy, the PP re-conducted the sensitive analysis using the actual values of the input parameters, calculation also shows that the IRR is too low to have a normal result. So it could be deduced that the sensitive analysis is not affected applying the actual value of the input parameters.

The re-calculation spreadsheet is provided and the calculation process is checked to be correct.

Based on the above analysis, it is confirmed that the additionality of the project activity is not affected.

- The scale of the project activity;

The scale of the project activity is 48MW equally divided into two construction phases, which is designed and carried out as per the FSR. This is not affected by the changes.

- The applicability and application of the applied methodology under which the project activity has been registered or the later version of the applied methodology;





For all the identified changes, only the change of the types of biomass residues may have influence of the applicability of the applied methodologies. As per ACM0006 (version 09), possible leakages due to competing use of biomass have to be considered. When the types of used biomass residues are changed, the leakage has to be reconsidered. Related analysis is as follows:

In the registered PDD, according to the applied methodology ACM0006 (version 09), the approach L2 for estimating leakage is applied in the proposed project for demonstrating that the quantity of available biomass residue of each type in the region is at least 25% larger than the quantity of residues utilized. In response to the new type of biomass residues utilized in the project.

Because the wood chips and barks are included in the applied biomass residue types, the geographical boundary of the biomass collection is changed from "70km around the project site" in the registered PDD to be "100km" in the revised PDD. The demonstration of abundant surplus of biomass availability for the used biomass types is revised using the updated data of the year 2010 instead of the year of 2007 as used in the registered PDD. An investigation of the new biomass residue types carried out by Wuhan Kaidi Power Engineering Co., Ltd., and the report is checked by the validation team. The biomass availability analysis stated in table B-14 of the revised PDD is cross checked by the validation team and confirmed to be correct.

Table 4: Demonstration of abundant surplus of biomass availability

	Rice husks	Rice straws	Maize straws	Wood chips	Branches	Barks
Available Biomass in the region (10000t)	27.71	97.33	79.27	49.50		
Biomass utilized out of the project (10000t)	5.54	19.47	15.85	7.43		
Biomass utilized by the project (10000t)	15.00	10.00	3.00	11.00	3.500	6.08
Total biomass utilized, including the project (10000t)	20.54	29.47	18.85	28.01		
Available Biomass/Total biomass utilized	135%	330%	420%	177%		
Available Biomass/Total biomass utilised -100%	35%	230%	320%	77%		
Abundant surplus? (more than 25%)	Yes	Yes	Yes	Yes		



The result shows that the biomass residue is abundant in local area. So the applicability and application of the applied methodologies is not affected.

- The compliance of the monitoring plan with applied monitoring methodology

The monitoring system, method and equipment in the registered monitoring plan are not affected by the changes. The only information that has changed is that the average capacity of the biomass transport vehicle is changed from 3t to 10.7t. Also considering the actual quantity of consumed biomass in the year 2011, the number of truck trips for the annual transportation of biomass is changed from 123,800 in the registered PDD version 4 to be the 27,694 of the actual situation in 2011. This situation does not affect the registered monitoring plan. So the monitoring plan is still in compliance with the applied monitoring methodologies.

- The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan

Similar as the above analysis, the monitoring system, method and equipment in the registered monitoring plan are not affected by the changes. The only information that has changed is that the average capacity of the biomass transport vehicle is changed from 3t to 10.7t. Also considering the actual quantity of consumed biomass in the year 2011, the number of truck trips for the annual transportation of biomass is changed from 123,800 in the registered PDD version 4 to be the 27,694 of the actual situation in 2011. This situation does not affect the registered monitoring plan nor the level of accuracy of monitoring. So the level of accuracy of the monitoring is still in compliance with the requirements contained in the registered monitoring plan.

- 6) Assessment of how the proposed revisions ensure that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revision

It is confirmed that the level of accuracy and completeness in the monitoring and verification process is not affected by the changes.

- 7) The changes will not lead to a reduction in the accuracy of the calculation of emission reductions

It is confirmed that the changes will not lead to a reduction in the accuracy of the calculation of emission reductions.

- 8) The findings of the previous verification reports have been taken into account

The inconsistent between real operation and registered PDD is identified during the first verification process. The findings during this verification process have been taken into account.

- 9) The changes comply with the requirements established in the Project Standard, thus it shall be submitted to the Board following the Project cycle procedure for post registration changes

It is confirmed that the changes comply with the requirements established in the Project Standard, thus it shall be submitted to the Board following the Project cycle procedure for post registration changes.

According to the requirement of the EB, the PPs have applied the latest PDD template under the



VVS tract, while the registered PDD (version 4) was under VVM tract. After thorough check, the validation team confirms that the information in the revised PDD has no material variation with that in the registered PDD other than the changes that have been elaborated in this assessment opinion.



#### 4. Validation Opinion

China Environmental United Certification Center Co., Ltd (hereafter "CEC") has been contracted with Yueyang Kaidi Green Energy Development Co., Ltd. to perform a validation on the changes to the project design of a registered project activity for the project "Hunan Yueyang Kaidi Biomass Power Project", UNFCCC Ref. No. 3065. The validation was performed following the UNFCCC criteria, approved methodology and relevant EB guidance and meeting reports.

In accordance with the requirements of the VVS (version 04.0), CEC confirms that:

- 1) The changes to the project activity are assessed by the validation team compared to the registered PDD, a description of the changes and their validation opinion is provided in this report.
- 2) The changes only reflect the actual operation of the project activity, will not impact the overall operation to deliver emission reductions as stated in the PDD;
- 3) The changes do not adversely impact any of the following do not require prior approval by the Board: (a) The additionality of the project activity; (b) The scale of the project activity; (c) The applicability and application of the applied methodology under which the project activity has been registered or the later version of the applied methodology;
- 4) The changes ensure that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revision;
- 5) The changes to the monitoring plan are in compliance with the approved monitoring methodology applicable to the project activity.
- 6) The changes will not lead to a reduction in the accuracy of the calculation of emission reductions.
- 7) The changes are identified during the first verification. The findings of the verification report have been taken into account.
- 8) The changes comply with the requirements established in the Project Standard, thus it shall be submitted to the Board following the Project cycle procedure for post registration changes.
- 9) The information in the revised PDD has no material variation with that in the registered PDD other than the changes that have been elaborated in this assessment opinion.

Beijing, 05/08/2013

QIN Boya

Validation Team Leader

China Environmental United Certification Center Co., Ltd (CEC)

Beijing, 08/08/2013

SONG Tiedong

Chairman of Board



## 5. References

1. Monitoring Report, version 01 and version 02
2. Project Design Document, version 04 and version 05
3. Validation Report, version 03, TÜV Rheinland Japan Ltd.
4. Assessment Opinion on Post-registration Changes, version 01, CEC
5. Emission Calculation Spreadsheet version 01 and version 02
6. Energy Balance Calculation version 01 and version 02
7. Business License, Bureau of Business of Yueyang City, 12/02/2007
8. Power Purchase Agreement, Yueyang Kaidi Green Energy Development Co., Ltd and Hunan Power Grid, 30/07/2010
9. Daily Operation Record, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011
10. Nameplate and technical parameters of boilers, steam turbines and generators
11. Calibration Certificates of the meters, Hunan Electric Power Company Test and Research Institute
12. Calibration Certificates of the meters, Yueyang Measure Test and Calibration Center
13. Calibration Certificates of the balances and dry cabinets, Hunan Institute of Metrology and Test
14. Calibration Certificates of the flow meters, Changcheng Institute of Metrology and Measurement
15. Accreditation Certificate of Hunan Electric Power Company Test and Research Institute, China National Accreditation Service for Conformity Assessment, 01/12/2007
16. Accreditation Certificate of Yueyang Measure Test and Calibration Center, China National Accreditation Service for Conformity Assessment, 20/10/2008
17. Accreditation Certificate of Hunan Institute of Metrology and Test, China National Accreditation Service for Conformity Assessment, 01/12/2010
18. Test report of biomass residues, Luoyang Coal Quality Test Center
19. Test report of biomass residues, Huazhong State Key Laboratory on Coal Combustion, University of Science and Technology
20. Certification of Luoyang Coal Quality Test Center, 11/08/2008
21. Certification of Huazhong State Key Laboratory on Coal Combustion
22. Test report of biomass residues, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011
23. Biomass Availability Report, Wuhan Kaidi Electric Power Engineering Co., Ltd., 2011 and 2012
24. Biomass settlement record, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011
25. Biomass consumption record, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to



31/12/2011

26. Biomass fuel analysis record, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011

27. Biomass fuel purchase contracts and invoices, Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011

28. Diesel fuel consumption record, Hunan Yueyang Kaidi Biomass Power Project, 01/01/2011 to 31/12/2011

29. Diesel fuel purchase invoices, 01/01/2011 to 31/12/2011

30. Electricity generation and input record, settlement notice and invoice, 01/07/2010 to 30/06/2012

31. Electrical Dispatch and Operation Certificates of employees

32. DL/T 448-2000: Technical Administrative Code of Electric Energy Metering

33. JJG 1036-2008: Verification Regulation for Electronic Balance

34. JJG 555-1996: General Verification Regulation for Nonautomatic Weighing Instrument

35. JJG 443-2006: Verification Regulation of Fuel Dispenser

36. JJG 672-2001: Verification Regulation of the Bomb Calorimeter

37. 2006 IPCC Guidelines for National Greenhouse Gas Inventories

38. China Energy Statistical Yearbook 2012

39. Validation and Verification Standard, version 04.0

40. ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources, version 10

41. ACM0006 Consolidated methodology for electricity generation from biomass residues, version 9

42. Combined tool to identify the baseline scenario and demonstrate additionality, Version 02.2

43. Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion, Version 02

44. Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01

45. Tool to calculate the emission factor for an electricity system, Version 02

46. Standard for application of the global warming potentials to Clean Development Mechanism project activities and programmes of activities for the second commitment period of the Kyoto Protocol, version 01.0



## 6. Certificate of Competence

### QIN Boya

Qualification in accordance with CEC-4001C-B/8 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area (s): 1.1,1.2

Beijing, 12 May 2012

ZHANG Xiaodan

XU Linghua

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CDM Supervisor, Technical Director

Quality Assurance Management Division

### XU Linghua

Qualification in accordance with CEC-4001C-B/7 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 1.2

Beijing, 01 Dec 2011

ZHANG Xiaodan

XU Linghua

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CDM Supervisor, Technical Director

Quality Assurance Management Division





## LIU Yaotian

Qualification in accordance with CEC-4001C-B/7 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 1.2

Beijing, 01 Dec 2011

ZHANG Xiaodan

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CDM Supervisor, Technical Director

XU Linghua

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Quality Assurance Management Division

## SONG Quanbo

Qualification in accordance with CEC-4001C-B/7 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 13.2, 15.2

Beijing, 01 Dec 2011

ZHANG Xiaodan

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CDM Supervisor, Technical Director

XU Linghua

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Quality Assurance Management Division



## YIN Yun

Qualification in accordance with CEC-4001C-B/7 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 1.1, 1.2, 2.2, 3.1

Beijing, 01 Dec 2011

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Quality Assurance Management Division

## CUI Xiaodong

Qualification in accordance with CEC-4001C-B/8 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area (s): 1.2

Beijing, 27 Jun 2012

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