

VERIFICATION REPORT FOR JILIN LIAOYUAN 50MW LEVEL BIOMASS COGENERATION PROJECT



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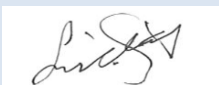
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Summary:

re-consult Ltd. has been appointed by “National Bio Energy Co., Ltd.” to perform a gap validation and verification of the “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project” with regard to the requirements of VCS (Version 3.3), ACM0006 (Version 06.2) and ACM0002 (Version 07).

The proposed project- “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project” was registered as a CDM project on 09/03/2010, and the UNFCCC reference number is 2563. This gap validation of VCS PD template cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 is annexed to cover all the requirements set out in the VCS (version 3.3) standards for projects validation together with the validated PDD (version 09) and CDM validation report (version 04) and Validation Opinion on Changes from the Project Activity as Described in the PDD (version 02).

The verification has been executed in the following steps so far:

- - Desk review of VCS monitoring report, Version 1.0, 15/06/2013, VCS PD, Version 1.0, 15/06/2013
- - Registered PDD (version 08, 15/02/2010), validation report (01/03/2010) and Revised PDD (version 09, 24/05/2010), Validation Opinion on Changes (version 02).
- -Applied methodology of ACM0006, Version 06.2 and ACM0002, Version 07.
- - On-site visit with stakeholder interviews (20/06/2013-22/06/2013)
- - Issue draft verification report with corrective action requests (CARs) and clarification requests (CLs)
- - Desk review of revised VCS monitoring report, version 2.2, 20/08/2013
- - Review of proposed corrections and clarifications
- - Issue of the final verification report

During the verification, 4 Corrective Action Requests and 5 Clarification Requests were raised, all

of which were closed out before the issuance of this verification report. No FAR was raised. In summary, it is re-consult's opinion that the project activity "Jilin Liaoyuan 50MW Level Biomass Cogeneration Project" in People's Republic of China, is in compliance with the monitoring plan described in the revised PDD. The GHG emission reductions are calculated correctly as per the applied methodology and the emission reductions given in the monitoring report version 2.2, dated 20/08/2013 are fairly stated. Therefore, re-consult Ltd. confirms the implementation of the Project resulted in 331,085 tCO₂e of emission reductions during the verification period 30/11/2007 to 08/03/2010.

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1 INTRODUCTION

1.1 Objective

re-consult Ltd. has been appointed by “National Bio Energy Co., Ltd.” to perform the gap validation and verification of the “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project”. The gap validation of the project is to determine whether the CDM project, “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project”, meet all the criteria defined under VCS (version 3.3). The objective of this verification activity is to assess, with objective evidence:

- if the reductions generated by the project are in line with the VCS (version 3.3) and the information provided by the project participants contains all the necessary information to evidence the project's compliance with all criteria in the VCS.
- if the final version of monitoring report conforms with the requirements of the monitoring plan of the revised PDD and the approved methodology.
- if the project activity conforms with the monitoring report and the revised PDD, and
- if the data reported in the monitoring report are complete and transparent.

1.2 Scope and Criteria

The scope of the verification is the independent and objective review of the monitored GHG reductions. The gap validation and verification activity is based on the PD, Monitoring report, the validated CDM PDD and validation report, monitoring methodology, and the supporting documents and information, combined with the on-site assessment. Those documents have been reviewed and verified against VSC (version 3.3) requirements, UNFCCC rules and associated interpretations.

The only purpose of the verification and certification is its usage during the issuance process as part of the VCS project cycle. Therefore, re-consult can't be held liable by any party for decisions made or not made based on the verification and certification opinion, which will go beyond that purpose.

1.3 Level of Assurance

The validation and verification of the project is assured reasonable by the verification team on the basis of documentation review, on-site assessment & interview and background investigation on the internet.

1.4 Summary Description of the Project

The project is a newly-built biomass project with total installed capacity of 30MW. It is located in Longshan Industrial Development Zone, Shoushan Town, which is 10 kilometres from the central area of Liaoyuan City. Liaoyuan City lies in the middle-south of Jilin province, P.R. China.

The purpose of the project is to utilize available biomass residue to generate electricity and heat through 1 set of 130t/h boiler and 1 set of 30MW steam turbine generator. It is estimated that the Project can deliver 190.2 GWh of electricity to the Northeast China Power Grid (NEPG) and supply 0.75 million GJ of heat to Longshan Industrial Development Zone per year. As for heat generation, the port of heat exported was set aside in construction period already, but the local heat network had not been finished by local government during the monitoring period, the project was not able to supply heat to any user during this monitoring period. The exported electricity displaces electricity generation from fossil fuel fired power plants in the NEPG and thus reduces GHG emissions.

Prior to the Project, the biomass residues used in the Project are dumped or left to decay under mainly aerobic conditions. The electricity supplied by the Project is supplied by NEPG which generates CO₂ emissions as it is mainly composed of traditional fossil fuel fired power plants. These are also the baseline scenarios of the Project.

The project has been registered as a CDM project (CDM Registration No. 2563) on 09/03/2010, and then the post registration change has been approved by the EB board on 11/01/2011. The main change of PDD is that the installation capacity was changed from 50MW to 30MW. The installation of two straw-fired boilers and 2 sets of steam turbine with capacity of 25MW for each and 2 sets of generator with capacity of 30MW for each is the primary design plan, but after serious consideration, the project owner decided to install one straw-fired boiler and one set of steam turbine and generator with capacity of 30MW. The general description of the project can be referred to the revised PDD/D07/. The Specific clauses 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template have been described in the PD/D13/D77/ and assessed in section 2 below.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

Method and Criteria:

The validation was performed in two stages: document review and on-site assessment (including interview and inspection). The gap validation was in accordance with applicable criteria listed in section 1.2 of this report and 1 CAR was found by the validation team during this gap validation.

Document Review:

The basis for the gap validation activity is the PD version 1.0, dated 15/06/2013. This PD was revised once due to the raised CARs and CLs, version 2.1 dated 13/08/2013 being the final version. The PD was assessed against VCS (version 3.3).

The list of the documents which were reviewed is given in the Table 3-1 under section 3 which shows the total documents reviewed during the validation as well as verification process.

Interviews:

During the validation period follow-up interviews were realized by the validation team to further analyze the correctness and accurateness of the information provided.

The list of people who were interviewed during the validation period is given in the Table 2-1 below:

Table 2-1: List of persons interviewed

Reference Number	Means of Interview ¹	Full Name	Title	Organization
I01	SV	Hui ZHAO	Director of CDM center	National Bio Energy Co., Ltd. ²
I02	SV	Wenshi YAO	Project Manager	National Bio Energy Co., Ltd.
I03	SV	Jishan ZHANG	General Manager	National Liaoyuan Bio Energy Co., Ltd.
I04	SV	Shihai WANG	Vice General Manager	National Liaoyuan Bio Energy Co., Ltd.
I05	SV	Jian CHENG	CDM Manager	National Liaoyuan Bio Energy Co., Ltd.

Site Inspections: As a part of the validation activities a site visit was performed to the project activity site, details of which can be seen in the Table 2-2 below:

Table 2-2: Site visit details

¹ SV: Site visit; T: Telephone; E: E-mail

² National Bio Energy Co., Ltd is the parent company of National Liaoyuan Bio Energy Co., Ltd. And National Bio Energy Co., Ltd owns all the shares of National Liaoyuan Bio Energy Co., Ltd.

Date	20/06/2013-22/06/2013	
Location	Liaoyuan City, Jilin Province, P.R.China	
Participant	Company Name	Role in the Organization / Role in the Site Visit
Hui ZHAO	National Bio Energy Co., Ltd.	Director of CDM center
Wenshi YAO	National Bio Energy Co., Ltd.	Project Manager
Jishan ZHANG	National Liaoyuan Bio Energy Co., Ltd.	General Manager
Shihai WANG	National Liaoyuan Bio Energy Co., Ltd.	Vice General Manager
Jian CHENG	National Liaoyuan Bio Energy Co., Ltd.	CDM Manager
Points Verified		Source of Information
-Project background information; - General aspects of the project; - Project design, Commissioning and implementation; - Technical equipment and operation of the project - Performance of the project - Involved personnel and responsibilities - Training and practice of the operational personnel		Mr. Jishan ZHANG Mr. Wenshi YAO Mr. Shihai WANG Revised PDD/D07/ Commission quality supervising check report /D18/ Approval for the project (Ji Fa Gai Neng Yuan Zi[2006]No.200)/D65/ EIA approval for the project (Jihuanjianzi[2006]No.12)/D17/
-Desk review findings; - Editorial aspects of MR and supplement PD - Details of emission reduction calculation.		Mr. Wenshi YAO Ms. Jian CHENG

Resolution of Any Material Discrepancy:

In line with re-consult internal terminology and VCS version 3.3, the team reports the non-conformities in the forms of Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs). When and for which type of non-conformities CARs, CLs and FARs are issued are explained below.

- The Validation team raises a **CAR** if one of the following occurs:
 - The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
 - The CDM and/or VCS requirements have not been met
 - There is a risk that emission reductions cannot be monitored or calculated.

- The Validation team raises a **CL** if information is insufficient or not clear or not transparent enough to determine whether the applicable CDM and/or VCS requirements have been met.
- The Validation team raises a **FAR** during validation to highlight issues related to project implementation that require review during the first verification of the project activity.

According to these principles total of 1 CAR was raised during gap validation.

The appointment process of the validation team takes into account the technical area(s), sectoral scope(s), and relevant host country experience required amongst team members for the accurate and thorough assessment of the project design. The relevant VCS validation and previous ITR experiences are also assessed during the selection of the team members and Independent Technical Reviewer (ITR), respectively.

The validation team members and ITR are given in Table 2-3 below:

Table 2-3: Validation team and ITR details (It is also the verification team)

Name	Role	Host Country Experience	Scope Coverage	Technical Expertise	Financial Expertise	Involv.
Jindong LIANG	Team Leader	☒	☐	☐	☐	DR,R
Dan LI	Trainee Team Leader	☒	☐	☐	☒	DR,SV,R
Linwei MA	Technical Expert	☒	☒	☒	☐	DR,SV
Johann THALER	ITR	☒	☒	☒	☒	ITR

Please list all the team members and ITR.

* Explanations for the abbreviations used for involvement types are as follows:

A : Administrative

DR : Desk Review

SV : Site Visit

R : Reporting

ITR : Independent Technical Review

2.2 Validation Findings

Gap Validation

According to the requirement of VCS version 3.3/D01/, VCS recognizes the CDM as a GHG Program that meets its VCU Verification Criteria, this verification report thus only address VCS specific and unique criteria in terms of project design, applicability to the adopted methodology, the project description, monitoring report and additionality that have not been so far addressed in the Validation Report as per CDM requirement.

The proposed project was registered as a CDM project on 09/03/2010 and the UNFCCC reference number is 2563/D61/. As per the requirements defined under VCS (version 3.3)/D01/,

especially specified in section 3.11.8 of VCS (version 3.3), the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template (version 03.1)/D10/ shall be subject to further validation. The gap validation of these sections is stated as follows:

Cover Page

The cover page is provided as per the VCS PD template. The project title has been validated to be the same as the registered CDM project. The version, date of issue, the entity preparing the relevant information and the contact information has been validated to be correct.

1.2 Sectoral Scope and Project Type

Based on the revised PDD/D07/, the sectoral scope is: Energy Industries (renewable sources); Project Type: Grid-connected renewable power generation (biomass power project); This is verified by the validation team during onsite inspection.

1.3 Project Proponent

The project proponent identified is National Bio Energy Co.,Ltd, which is consistent with revised PDD/D07/ and the business license/D66/.

1.5 Project Start Date

According to Commission quality supervising check report/D18/, the project was operated as normal on 30/11/2007. Therefore, the project started commercial operation is recognized as the first activity began to reducing and removing GHG emissions. The first operational date 30/11/2007 was identified as the project start date, which is in line with VCS Standard Version 3.3.

1.6 Project Crediting Period

The project was registered as a CDM project by UNFCCC on 09/03/2010, which is a seven year renewable project. The emission reductions occur prior to the registration of the project as CDM project activity which cannot be claimed as Certified Emission Reductions (CERs) are thus claimed as Voluntary Carbon Units (VCU) under VCS program. Therefore, the project crediting period was identified as the period between the project operational starting date and the day before CDM registration from 30/11/2007 to 08/03/2010.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

The validation team has reviewed the PDD/D07/ and the Validation Opinion on Changes from the Project Activity as Described in the Registered PDD/D08/ under CDM and confirms the estimated calculation of ER is 190,139 tonnes of CO₂e annually, which is less than 300,000 tonnes of CO₂e annually. So the project is classified as Projects scale but not large projects scale.

CAR-1 was raised regarding to scale issue and finally closed, and for details please refer to table 2 in Annex I of this report.

1.9 Project Location

The project site is located in Longshan Industrial Development Zone, Shoushan Town, Liaoyuan City, Jilin Province, P.R. China. Shoushan Town is 10 kilometres from the central area of Liaoyuan City. Liaoyuan City lies in the middle-south of Jilin province. The Project has geographical coordinates with east longitude of 125°15'23" and north latitude of 42°55'24". The

validation team performed an on-site visit to the project from 20/06/2013-22/06/2013 and confirmed that the geographic location of the Project consists with the revised PDD/D07/ and the VCS monitoring report (hereafter referred to as MR) /D12/D76/.

1.10 Conditions Prior to Project Initiation

According to the revised PDD/D07/, the conditions existing prior to project initiation is the same as baseline scenario, which is the biomass residues are dumped or left to decay mainly under aerobic conditions or biomass residues are burnt in an uncontrolled manner without utilizing it for energy purpose and NEPG providing the same amount of electricity as the project activity. The heat to supply consumers of Liaoyuan Industrial Development Zone is produced from burning fossil fuel (this part is not considered as there is no heat generated during this monitoring period).

1.12.1 Right of Use

According to the revised PDD/D07/ and the MR/D12/D76/, the project owner is National Bio Energy Co., Ltd., who has the original right to claim emission reductions. The ownership of the project activity has been proved by the business license/D66/ and approval of the project issued by Jilin Province Development and Reform Commission on 20/03/2006/D65/, Environmental Impact Assessment (EIA) approval/D17/ issued by Jilin Province Environmental Protection Bureau. The validation team confirms that the project's design and implementation has been subject to relevant national legislation in China, which also meets the standard for proof of right of use set forth in the VCS version 3.3, § 3.11.1.

1.12.2 Emissions Trading Programs and Other Binding Limits

The project activity has been registered as a CDM Project on 09/03/2010 (CDM Registration No. 2563) and the first crediting period begins from 09/03/2010. For details, please review <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1241699458.61/view>.

The concerned monitoring period pertaining to this verification is 30/11/2007 to 08/03/2010, which is not included in an emissions trading program, and does not take place in a jurisdiction or sector in which binding limits are established on GHG emissions. The proposed project does not reduce GHG emissions from activities that participate in an emissions trading program other than CDM or VCS (prior to CDM), so the section is not applicable.

1.12.3 Participation under Other GHG Programs

The project was registered as a CDM project on 09/03/2010 (CDM Registration No. 2563). However, only emission reduction achieved before CDM crediting start date were claimed as VCUs.

1.12.4 Other Forms of Environmental Credit

The validation team confirms that there is no Chinese domestic scheme for renewable energy certificates in existence. In addition, as confirmed with the project representative Mr. Hui ZHAO /I01/, the project neither has nor intends to generate any other form of GHG-related environmental credit.

1.13 Additional Information Relevant to the Project

Eligibility Criteria

N.A. This project is not grouped projects.

Leakage Management

By reviewing revised PDD/D07/ and Statement regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/, it was demonstrated that the biomass supply to the proposed project is sufficient and will not lead to the displacement of the current use of biomass as a fuel, so as per ACM0006 (ver 06.2), the leakage of the project is zero.

Commercially Sensitive Information

The validation team has not found any commercially sensitive information excluded from the public version of the project description.

Further Information

The validation team has not found other information may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

Methodology Deviations

N.A.

Project Description Deviations

N.A.

New Project Activity Instances

N.A.

2.3 Validation Conclusion

re-consult Ltd. has performed the validation of the “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project” in “P.R. China”. The validation was performed on the basis of VCS criteria, UNFCCC criteria for the CDM, VCS and Host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation has been performed by a validation team consisting of “Mr. Jindong LIANG, Ms. Dan LI, Mr. Linwei MA and Mr. Johann THALER”, and the project activity was checked against the applicable rules and regulations of VCS version 3.3.

As per the section 3.11.8 of VCS version 3.3, only gap validation is required. A limited validation was performed covering the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template (version 03.1) and no any discrepancy is identified in the course of the gap validation.

As a result of the gap validation, the validation team confirms that the project follows the VCS (version 3.3) standards.

Liang JIANG
Team Leader
31.07.2013

Liang Jindong

JOHANN THALER
ITR
20.08.2013

ANIL SÖYLER
Certification Manager
20.08.2013

3 VERIFICATION PROCESS

3.1 Method and Criteria

The objective of this verification activity is to assess, with objective evidence:

- if the monitoring report conforms with the requirements of the monitoring plan of the revised CDM PDD and the approved methodology
- if the project activity conforms with the VCS monitoring report and the revised PDD, and
- if the data reported in the VCS monitoring report are complete and transparent.

The scope of the verification is the independent and objective review of the monitored GHG reductions.

The verification consists of the following steps:

- a desk review of the revised CDM PDD/D07/, VCS PD/D13/ the VCS MR/D12/, and supporting documents submitted by PPs;
- on-site assessment and follow-up interviews with personnel of the PPs;
- raising CARs, CLs, FARs when appropriate;
- resolution CARs/CLs and issuing the final verification report;
- the final verification report including the verification findings underwent a technical review before being submitted to the PPs and requesting issuance of the VCU.

3.2 Document Review

The basis for the verification activity is the VCS monitoring report version 1.0. This monitoring report was revised several times due to the issued CAR and CLs, version 2.2, dated 20/08/2013 being the final version. The monitoring report and the monitoring activities were assessed against the registered revised CDM PDD, version 09 dated 24/05/2010, the approved methodology ACM0006 version 06.2, ACM0002 version 07, the relevant VCS rules and regulations, CDM rules and the final CDM validation report.

The following actions were involved in the desk review:

- A review of the data and information presented to verify their completeness
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions

The list of the documents which were reviewed during the verification period is given in the Table 3-1 below:

Table 3-1: List of documents reviewed (including the documents reviewed during validation and verification)

Document Number	Document Name	Version	Date (dd/mm/yyyy)
D01	VCS Standard	3.3	04/10/2012
D02	CDM validation and verification standard	4.0	29/07/2013

Document Number	Document Name	Version	Date (dd/mm/yyyy)
D03	Approved consolidated baseline and monitoring methodology ACM0006 “Consolidated methodology electricity generation from biomass residues”	06.2	02/08/2008
D04	Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion	02	02/08/2008
D05	Tool to calculate baseline, project and/or leakage emissions from electricity consumption	01	16/05/2008
D06	ACM0002: Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources.	07	14/12/2007
D07	CDM Project Design Document (PDD) (Revised CDM PDD)	09	24/05/2010
D08	Validation Opinion on Changes from the Project Activity as Described in the Registered PDD	02	09/03/2010
D09	CDM Validation Report	04	01/03/2010
D10	VCS Project description Template	3.1	-
D11	VCS Monitoring Report Template	3.2	-
D12	VCS Monitoring Report (MR)	1.0	15/06/2013
D13	VCS Project Description (PD)	1.0	15/06/2013
D14	Emission Reductions Calculation Spreadsheet	1.0	15/06/2013
D15	CDM Monitoring management regulation issued by National Bio Energy Co., Ltd.	-	-
D16	CDM Project Training Record	-	2007-2010
D17	EIA approval for the project issued by Jilin Province Environmental Protection Bureau (Jihuanjianzi[2006]No.12)	-	25/01/2005
D18	Commission quality supervising check report	-	30/11/2007
D19	Statement regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee	-	21/01/2008 25/01/2009 26/01/2010 25/01/2011
D20	The proof of the initial meter’s reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd	-	30/11/2007
D21	The proof of the ending meter’s reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd	-	09/03/2010
D22	Statistic sheets of exported and imported electricity	-	2007-2010
D23	Invoices of the exported electricity	-	2007-2010
D24	Transition note of monthly exported electricity	-	2007-2010
D25	Transition note of monthly on purchased grid electricity	-	2007-2010

Document Number	Document Name	Version	Date (dd/mm/yyyy)
D26	Diesel consuming and purchasing statistic sheets	-	2007-2010
D27	Invoices of diesel purchased	-	2007-2010
D28	Diesel consumption record	-	2007-2010
D29	Testing report for NCV of the biomass residue	-	15/10/2007 13/03/2008 11/09/2008 09/03/2009 07/09/2009
D30	Biomass residues purchase statistic sheets	-	2007-2010
D31	Biomass purchase statement sheets	-	2007-2010
D32	Biomass daily consuming sheets	-	
D33	Biomass consuming statistic sheets	-	2007-2010
D34	Calibration certificate of electricity meters issued by Electric Supervision and Testing Center of Jinlin Province	-	31/03/2007- 30/03/2008 29/03/2008- 28/03/2009 27/03/2009- 26/03/2010
D35	Calibration certificate of the 40 line electronic weight belt issued by Liaoyuan City Weighing Instrument Verification and Repair Agency	-	21/12/2008- 20/05/2009 15/02/2009- 14/08/2009 13/08/2009- 12/02/2010 11/02/2010- 10/08/2010
D36	Calibration certificate of the 10 line electronic weight belt issued by Liaoyuan City Weighing Instrument Verification and Repair Agency	-	29/03/2009- 28/09/2009 13/08/2009- 12/02/2010 11/02/2010- 10/08/2010
D37	Calibration certificate of the electronic weight belt (type: 6001B) issued by Liaoyuan City Weighing Instrument Verification and Repair Agency	-	21/10/2007- 20/04/2008 19/02/2008- 18/08/2008 17/08/2008- 16/02/2009 15/02/2009- 14/08/2009 13/08/2009- 02/12/2010
D38	Calibration certificate of the electronic car	-	21/08/2007-

Document Number	Document Name	Version	Date (dd/mm/yyyy)
	bridge issued by Liaoyuan City Weighing Instrument Verification and Repair Agency		20/02/2008 19/02/2008- 18/08/2008 17/08/2008- 16/02/2009 15/02/2009- 14/08/2009 13/08/2009- 12/02/2010 11/02/2010- 10/08/2010
D39	Calibration certificate of Electric balance issued by Measurement and Testing Center of Liaoyuan City	-	04/09/2007- 03/09/2008 02/09/2009- 01/09/2010 03/09/2008- 02/09/2009
D40	Calibration certificate of electronic blast dryer issued by Measurement and Testing Center of Liaoyuan City	-	05/09/2007- 04/09/2008 03/09/2009- 02/09/2010 04/09/2008- 03/09/2009
D41	Calibration certificate of flow meter issued by Measurement and Testing Center of Liaoyuan City	-	05/09/2007- 04/09/2008 04/09/2008- 03/09/2009 03/09/2009- 02/09/2010
D42	Certificate of Metrological Authorization for Special Items to Electric Supervision and Testing Center of Jinlin Province issued by Jinlin Province Bureau of Quality and Technology Supervision	-	Valid from 31/12/2005- 30/12/2009
D43	Certificate of Metrological Authorization for Special Items to Liaoyuan City Weighing Instrument Verification and Repair Agency issued by Jinlin Province Bureau of Quality and Technology Supervision	-	Valid from 30/12/2005- 31/12/2008 30/06/2008- 31/12/2011
D44	Certificate of Metrological Authorization for Special Items to Measurement and Testing Center of Liaoyuan City issued by Jinlin Province Bureau of Quality and Technology Supervision	-	30/12/2005- 31/12/2008 30/06/2008- 31/12/2011
D45	Metrology Accreditation Certificate to Electric	-	31/07/2005-

Document Number	Document Name	Version	Date (dd/mm/yyyy)
	Power Supervision and Testing Center of Heilongjiang Province issued by Quality and Technology Supervision Bureau of Heilongjiang Province		31/07/2010
D46	Picture of the electronic balance	-	-
D47	Picture of the electronic blast dryer	-	-
D48	Picture of the electricity meters	-	-
D49	Picture of the flow meter	-	-
D50	Picture of the electronic weight belt (type: 6001B)	-	-
D51	Picture of the electronic car weigh bridge	-	-
D52	Picture of the electronic weight belt (serial number 081218)	-	-
D53	Picture of the electronic weight belt (serial number 090325)	-	-
D54	Picture of the screen of the electronic weight belt	-	-
D55	Nameplate of the steam turbine	-	-
D56	Nameplate of the boiler	-	-
D57	Nameplate of the generator	-	-
D58	Grid connection and dispatching agreement, signed by Jinlin Province Power Co.,Ltd and PO	-	2007-2008
D59	Power purchase agreement, signed by Jilin Province Power Co.,Ltd and PO	-	2007-2010
D60	2006 IPCC Guidelines on National GHG Inventories	-	2006
D61	Registered page for the project on UNFCCC website: http://cdm.unfccc.int/Projects/DB/TUEV-SUED1241699458.61/view	-	09/03/2010 The notification of changes accepted by EB on 11/01/2011.
D62	Record of the initial and ending reading of monthly electricity	-	2007-2010
D63	2006 Baseline Emission Factors for Regional Power Grid in China	-	2006
D64	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, Moderate Control index for US Heavy Duty Diesel Vehicles in Table 1-32, page 1.75	-	1996
D65	Approval for the project issued by Jilin Province Development and Reform Commission (Jifagainengyuanzi[2006]No.200)	-	20/03/2006
D66	Business license of National Bio Energy Co.,Ltd issued by Beijing Administration for	-	Established on

Document Number	Document Name	Version	Date (dd/mm/yyyy)
	Industry and Commerce		07/07/2005
D67	Operating procedure for moisture measurement: GB/T211-1996	-	1996
D68	China Energy Statistical Yearbook 2011	-	2011
D69	Boiler Purchase Contract	-	08/02/2006
D70	Technical agreement for Turbine	-	12/2005
D71	Generator Purchase Contract	-	12/2005
D72	Supplemental agreement for the Turbine purchase contract	-	15/05/2006
D73	Supplemental agreement for the Generator purchase contract	-	06/06/2006
D74	The source of the density of diesel: Opportunities for the CDM in the energy sector the people's republic of China issued by Asian Development Bank. http://www2.adb.org/Documents/TARs/PRC/tar-prc-3840-fr-app-d.pdf	-	03/2004
D75	Daily biomass fuel consumption record	-	30/11/2007
D76	VCS Monitoring Report (MR)	2.2	20/08/2013
D77	VCS Project Description (PD)	2.1	13/08/2013
D78	Emission Reductions Calculation Spreadsheet	2.1	13/08/2013
D79	Transportation map showing the distances between biomass fuel supply sites to the project site	-	-
D80	Yue Jianzhi, Zhang Jie, Xu Guizhuan, Yang Shiguan, Zhang Bailiang "Measurement and Analysis on the Composition and NCV" http://wenku.baidu.com/view/9669b373f242336c1eb95e47.html	-	2006
D81	Metrological Verification Regulation of P.R. China for Digital Indicating Weighing Instrument (JJG 539-1997)	-	1997

Interviews

During the verification period follow-up interviews were performed by the verification team to further analyze the correctness and accurateness of the information provided.

The list of people who were interviewed during the verification period is given in the Table 3-2 below:

Table 3-2: List of persons interviewed

Reference Number	Means of Interview ³	Full Name	Title	Organization
I01	SV	Hui ZHAO	Director of CDM center	National Bio Energy Co., Ltd.
I02	SV	Wenshi YAO	Project Manager	National Bio Energy Co., Ltd.
I03	SV	Jishan ZHANG	General Manager	National Liaoyuan Bio Energy Co., Ltd.
I04	SV	Shihai WANG	Vice General Manager	National Liaoyuan Bio Energy Co., Ltd.
I05	SV	Jian CHENG	CDM Manager	National Liaoyuan Bio Energy Co., Ltd.

3.3 Site Inspections

As a part of the verification activities a site visit was performed to the project activity site, details of which can be seen in the below Table 3-3 below:

Table 3-3: Site visit details

Date	20/06/2013-22/06/2013	
Location	Liaoyuan, Jilin Province, P.R.China	
Participant	Company Name	Role in the Organization / Role in the Site Visit
Hui ZHAO	National Bio Energy Co., Ltd.	Director of CDM center
Wenshi YAO	National Bio Energy Co., Ltd.	Project Manager
Jishan ZHANG	National Liaoyuan Bio Energy Co., Ltd.	General Manager
Shihai WANG	National Liaoyuan Bio Energy Co., Ltd.	Vice General Manager
Jian CHENG	National Liaoyuan Bio Energy Co., Ltd.	CDM Manager
Points Verified	Source of Information	
Implementation and operation of the proposed VCS project activity as per the revised PDD	Mr. Wenshi YAO Mr. Jishan ZHANG Mr. Hui ZHAO	
Review of information flows for generating, aggregating and reporting the monitoring parameters	Onsite inspection and reviewing the following documents: Statistic sheets of exported and imported electricity/D22/ Diesel consuming and purchasing statistic sheets/D26/ Biomass residues purchase statistic sheets/D30/	
Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance	Mr. Wenshi YAO Ms. Jian CHENG Mr. Shihai WANG	

³ SV: Site visit; T: Telephone; E: E-mail

with the monitoring plan in the PDD	
Cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources	Reviewing following documents: Statement regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/ The proof of the initial meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd/D20/ The proof of the ending meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd/D21/ Statistic sheets of exported and imported electricity/D22/ Invoices of the exported electricity/D23/ Transition note of monthly exported electricity/D24/ Transition note of monthly on purchased grid electricity/D25/ Diesel consuming and purchasing statistic sheets/D26/ Invoices of diesel purchased/D27/ Diesel consumption record/D28/ Testing report for NCV of the biomass residue/D29/ Biomass residues purchase statistic sheets/D30/ Biomass purchase statement sheets/D31/ Biomass daily consuming sheets/D32/ Biomass consuming statistic sheets/D33/
Check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology	Onsite inspection as well as reviewing following documents: Calibration certificate of electricity meters issued by Electric Supervision and Testing Center of Jinlin Province/D34/ Calibration certificate of the 40 line electronic weight belt issued by Liaoyuan City Weighing Instrument Verification and Repair Agency/D35/ Calibration certificate of the 10 line electronic weight belt issued by Liaoyuan City Weighing Instrument Verification and Repair Agency/D36/ Calibration certificate of the electronic weight belt (type: 6001B) issued by Liaoyuan City Weighing Instrument Verification and Repair Agency/D37/ Calibration certificate of the electronic car bridge issued by Liaoyuan City Weighing Instrument Verification and Repair Agency/D38/ Calibration certificate of Electric balance issued by Measurement and Testing Center of Liaoyuan City/D39/

	Calibration certificate of electronic blast dryer issued by Measurement and Testing Center of Liaoyuan City/D40/ Calibration certificate of flow meter issued by Measurement and Testing Center of Liaoyuan City/D41/ Certificate of Metrological Authorization for Special Items to Electric Supervision and Testing Center of Jinlin Province issued by Jinlin Province Bureau of Quality and Technology Supervision/D42/ Certificate of Metrological Authorization for Special Items to Liaoyuan City Weighing Instrument Verification and Repair Agency issued by Jinlin Province Bureau of Quality and Technology Supervision/D43/ Certificate of Metrological Authorization for Special Items to Measurement and Testing Center of Liaoyuan City issued by Jinlin Province Bureau of Quality and Technology Supervision/D44/
Review of calculations and assumptions made in determining the GHG data and emission reductions	Emission Reductions Calculation Spreadsheet/D14/ Statement regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/ The proof of the initial meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd/D20/ The proof of the ending meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd/D21/ Statistic sheets of exported and imported electricity/D22/ Invoices of the exported electricity /D23/ Transition note of monthly exported electricity/D24/ Transition note of monthly on purchased grid electricity/D25/ Record of the initial and ending reading of monthly electricity/D62/ Diesel consuming and purchasing statistic sheets/D26/ Invoices of diesel purchased/D27/ Diesel consumption record/D28/ Testing report for NCV of the biomass residue/D29/ Biomass residues purchase statistic sheets/D30/ Biomass purchase statement sheets/D31/ Biomass daily consuming sheets/D32/

	Biomass consuming statistic sheets/D33/
Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	Mr. Zheng LI Ms. Jian CHENG Mr. Jishan ZHANG CDM Monitoring management regulation/D15/ CDM Project Training Record/D16/

3.4 Resolution of Any Material Discrepancy

The verification of this VCS project activity includes the following steps:

- Assessment of the conformity of the actual project activity and its operation with the revised PDD dated 24/05/2010 version 09.
- A site visit was conducted on 20/06/2013-22/06/2013 to assess that all physical features of the project activity proposed in the revised PDD are in place and that the project participants has operated the project activity as per the revised PDD.
- Assessment of the compliance of the monitoring plan with the monitoring methodology ACM0006 version 06.2 and ACM0002 version 07.
- Assessment of the compliance of monitoring with the monitoring plan
- Assessment of data and calculation of greenhouse gas emission reductions
- Issuance of the verification report
- Independent technical review
- Approval of the verification report and request of issuance

The Verification Protocol is used for the assessment of each requirement during the execution of verification activities and is given in Annex-1 of this verification report.

The Verification Protocol consists of two tables:

- Table 1 (Monitoring Report and VCS verification requirements) and
- Table 2 (Resolution of Corrective Action, Forward Action and Clarification Requests)

The usage description of Table-1 in Verification Protocol is explained in Table 3-4 below:

Table 3-4: Explanation about Table-1 in Verification Protocol

Question	Reference	MoV*	Findings, comments, references and document sources	Draft & Final Conclusion
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The requirements related with the monitoring report and verification	Gives reference to the legislation or documents where the relevant requirement is found	Explains how conformance with question is investigated. Examples of means of verification are Document Review (DR), Interview (I) and Not Applicable (NA)	Is used to elaborate and discuss the question and/or conformance to the question by giving related references and document sources based on which the finding is issued or evidence is checked	Either acceptable based on the evidence provided (OK), non-compliance with the requirement (CAR), further clarification (CL) due to insufficient, unclear or not transparent information, forward action request (FAR) that needs to be solved during the next periodic verification
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The usage description of Table-2 in Verification Protocol is explained in Table 3-5 below:

Table 3-5: Explanation about Table-2 in Verification Protocol

Draft Report Clarifications, Forward Action and Corrective Action Requests by Verification Team	Ref. to Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion
The all CL, FAR and CARs determined during the draft verification report should be listed here	Gives reference to the checklist questions in Table-1 of Verification Protocol	Is used to summarize the responses by project participants regarding the non-conformities	Is used to summarize the responses by verification and their conclusions

The Verification Protocol is fulfilled by the verification team in line with the descriptions above and all the CARs, CLs and FARs are listed in a transparent and clear manner.

During the verification period, a Verification Protocol which is attached in Annex 1 to this verification report was used to submit the findings to the project participants.

In line with re-consult internal terminology and VCS version 3.3, the team reports the non-conformities in the forms of Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs). When and for which type of non-conformities CARs, CLs and FARs are issued are explained below:

- The verification team raises a CAR if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in the monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
 - Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
 - Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.
- The verification team raises a CL if information is insufficient or not transparent not clear enough to determine whether the applicable CDM and/or VCS requirements have been met.
 - The verification team raises a FAR during verification for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

According to these principles total of 3 CARs and 6 CLs were issued during the verification and all of which are listed in the Verification Protocol (totally 4 CARs and 6 CLs were issued during the gap validation and verification, thereinto, 1 CAR was issued during the gap validation).

The appointment process of the verification team takes into account the technical area(s), sectoral scope(s), and relevant host country experience required amongst team members for the verification of the emission reductions achieved by the project activity in the relevant monitoring period for this verification. The relevant VCS verification and previous ITR experiences are also assessed during the selection of the team members and Independent Technical Reviewer (ITR), respectively. The verification team and ITR are assigned to this verification activity taking all the above factors into consideration and as a result of the contract review process.

The verification team and ITR details are given in Table 2-6 in previous section of this report.

As a final step of verification, the final documentation including the verification report and its annexes have to undergo an internal quality control by re-consult. This quality control is also referred to as Independent Technical Review process.

The Independent Technical Review is performed by another Team Leader who hasn't involved in the verification activities of this project activity. When the Team Leader finalizes the Verification Report, the report is sent to Independent Technical Reviewer, at this stage not only the report but all the supporting documents like emission factor calculations, additionality justifications, relevant excel sheets etc. are reviewed.

Further CLs and CARs can be issued by the Independent Technical Reviewer during this review, to cover all the points that may need further clarification.

After all the CLs and CARs are closed, the verification report is reviewed and approved by the Team Leader, ITR and the Certification Manager/General Manager, and the request of issuance is submitted to the VCS Organization in line with the positive verification opinion and along with the all relevant documents.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Implementation Status of the Project Activity

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

During the onsite visit, the verification team found that the proposed project processed maize stalk to generate electricity. As for heat generation, the port of heat exported was set aside in construction period already, but the local heat network had not been finished by local government during the monitoring period, the project was not able to supply heat to any user during this monitoring period. One 130t/h boiler and one 30MW steam turbines generator unit were well installed. Therefore, the installed capacity of the Project was 30MW. The electricity generated was supplied to NEPG.

All facilities and equipment as described in the revised PDD were in place; the key specifications of the boiler, steam turbine and generator have been verified with the nameplates/D55/D56/D57/ and the technical agreements attached to the equipment purchase contracts/D69/D70/D71/ as below:

Table 3-6 Key technical indicators of major equipment employed by the Project

Item	Quantity	Key technical specifications
Boiler	1 set	Type: HG-130/9.2-S.JG1 Maximum continuous steam output: 130t/h Rated steam pressure: 9.2 MPa(a) Rated steam temperature: 540°C Feed-water temperature: 210°C Exhaust temperature: 130°C Life time: 30 years Manufacturer: Harbin Boiler Company Limited
Steam turbine	1 set	Model: C30-8.83/0.981 Rated output: 30MW Rated rotation speed: 3,000r/min Rated flow of main steam: 110t/h; Rated pressure of main steam: 8.83 MPa(a) Rated temperature of main steam: 535°C; Life time: 30 years Manufacturer: Qingdao Jieneng Steam Turbine Group Co., Ltd.
Generator	1 set	Model: QF-30-2 Rated output: 30MW Rated voltage: 6.3kV Rated electric current: 3437A Rated rotating speed: 3,000r/min Life time: 30 years Manufacturer: Shandong Jinan Power Generation Equipment Plant

The metering instruments involved in this project including:

Electricity Meters:

Two electricity meters were installed, of which:

- One main meter and one backup meter were installed at the control room. They can measure the bi-directional electricity exported to and imported from the grid by the Project.

Weight Meters:

Three belt weight meters have been installed under the biomass supplying lines, and can continuously measure the quantity of biomass residue combusted in the Project.

One weight bridge meter has been installed at the entrance of the Project site, and can measure the quantity of biomass residue transported to the project site.

Diesel Flow Meter:

The diesel consumption of the Project is monitored by diesel flow meter installed at the Project site.

Moisture Meter:

The moisture of biomass residues has been measured by an electric balance and a blast dry oven in the testing lab as per the standard procedure.

The calibration records of the monitoring instruments/D34/D35/D36/D37/D38/D39/D40/D41/ have been reviewed by the verification team and the calibration information of the meters are as the follow Table 3-7:

Table 3-7. Calibration Records of the Meters

Meter	Model/Type	SN	Accuracy Class	Calibration Frequency	Calibration Date	Valid Period
Electricity energy meter (main)	ZMD402CT44	93982941	0.2s	Per year	31/03/2007 29/03/2008 27/03/2009	31/03/2007 - 30/03/2008 29/03/2008 - 28/03/2009 27/03/2009 - 26/03/2010
Electricity energy meter (Back-up)	ZMD402CT44	93982942	0.2s	Per year	31/03/2007 29/03/2008 27/03/2009	31/03/2007 - 30/03/2008 29/03/2008 - 28/03/2009 27/03/2009 - 26/03/2010
Weighbridge	SCS-50t-QC	212	III	6 months	21/08/2007 19/02/2008 17/08/2008 15/02/2009 13/08/2009 11/02/2010	21/08/2007 - 20/02/2008 19/02/2008 - 18/08/2008 17/08/2008

						- 16/02/2009 15/02/2009 - 14/08/2009 13/08/2009 - 12/02/2010 11/02/2010 - 10/08/2010
Weight belt 1	HY2105	081218	III	Twice per year	21/12/2008 ⁴ 15/02/2009 13/08/2009 11/02/2010	21/12/2008 - 20/06/2009 15/02/2009 - 14/08/2009 13/08/2009 - 12/02/2010 11/02/2010 - 10/08/2010
Weight belt 2	HY2105	090325	III	Twice per year	29/03/2009 ⁵ 13/08/2009 11/02/2010	29/03/2009 - 28/09/2009 13/08/2009 - 12/02/2010 11/02/2010 - 10/08/2010
Weight belt 3	6001B	6B232621 63X0888	III	Twice per year	21/10/2007 19/02/2008 17/08/2008 15/02/2009 13/08/2009 11/02/2010	21/10/2007 - 20/04/2008 19/02/2008 - 18/08/2008 17/08/2008 - 16/02/2009 15/02/2009 -

⁴ The weight belt 1 was installed on 22 December 2008

⁵ The weight belt 2 was installed on 1 April 2009

						14/08/2009 13/08/2009 - 12/02/2010 11/02/2010 - 10/08/2010
Flow meter	LC11 - A	046	0.5	Per year	05/09/2007 04/09/2008 03/09/2009	05/09/2007 - 04/09/2008 04/09/2008 - 03/09/2009 03/09/2009 - 02/09/2010
Electric blast oven	DHG-9145A	0900466	0.02	Per year	05/09/2007 04/09/2008 03/09/2009	05/09/2007 - 04/09/2008 04/09/2008 - 03/09/2009 03/09/2009 - 02/09/2010
Electronic balance	TE4101-L	24390302	III	Per year	04/09/2007 03/09/2008 02/09/2009	04/09/2007 - 03/09/2008 03/09/2008 - 02/09/2009 02/09/2009 - 01/09/2010

The calibrations of electricity meters have been conducted by Electric Supervision and Testing Center of Jinlin Province, authorized by Jinlin Province Bureau of Quality and Technology Supervision, with the certificate code of (Ji)Faji(2005) 0141/D42/. The valid period granted for the calibration organization is from 31/12/2005- 30/12/2009. The valid period for the organization covers the whole calibrations dates, and the valid period of the calibrations can cover the monitoring period.

The calibrations of weight meters (including weight bridge and weight belts) have been conducted by Liaoyuan City Weighing Instrument Verification and Repair Agency, authorized by Jinlin Province Bureau of Quality and Technology Supervision, with the certificate code of (Ji)Faji(2005) 0012 and (Ji)Faji(2008) 0012 /D43/. The valid period granted for the entity is from 30/12/2005-31/12/2011. The valid period for the organization covers the whole calibrations dates, and the valid period of the calibrations can cover the monitoring period.

The calibrations of diesel flow meter, electric balance and blast dry oven have been conducted by Measurement and Testing Center of Liaoyuan City, authorized by Jinlin Province Bureau of Quality

and Technology Supervision, with the certificate code of (Ji)Faji(2005) 007 and (Ji)Faji(2008) 007/D43/. The valid period granted for the entity is from 30/12/2005-31/12/2011. The valid period for the organization covers the whole calibrations dates, and the valid period of the calibrations can cover the monitoring period.

The verification team has verified the accuracy of the meters as per calibration records/D34/D35/D36/D37/D38/D39/D40/D41/ as well as the nameplate/D46/D47/D48/D49/D50/D51/D52/D53/ and confirmed the accuracy of all the meters meet the requirement of revised PDD/D07/ and VCS MP/D12/D76/.

Project Description Deviations

There are two project description deviations shown in the MR/D76/:

1. The type of weighbridge installed by the project during the monitoring period is SCS-50t-QC rather than SCS-30 as described in PDD.

The verification team has checked the nameplate of SCS-50t-QC, its accuracy is Class III and according to the "Metrological Verification Regulation of P.R. China for Digital Indicating Weighing Instrument (JJG 539-1997)" /D81/, its precision can reach 0-20kg". The accuracy of SCS-30 is 0-20kg, therefore the change of type has no influence on the precision of the measurement.

2. As per the revised PDD, the weight belt planned to use type SCS-30 with accuracy of 0-20kg. But at the actual situation, three weight belts were installed, two of them is type HY2105, the other one is type 6001B.

The verification team has checked the calibration certifications of the three weight belts, and can confirm the accuracy is Class III, and according to "Metrological Verification Regulation of P.R. China for Digital Indicating Weighing Instrument (JJG 539-1997)" /D81/, the precision can reach 0-20kg. The accuracy of SCS-30 is 0-20kg, therefore the change of type has no influence on the precision of the measurement.

The verification team deems that the above deviations are appropriately described and justified, and they do not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in compliance with the applied methodology, hence these two deviations are in line with para. 3.6.1 (item 2) of VCS standard version 3.3/D01/, and don't need further prior approval.

On the basis of the site visit and the reviewed project documentation, it can be confirmed that with regard to the realized technology, the project equipment as well as the monitoring and metering equipment, except the above two deviations, the project has been implemented and operated as described in the revised PDD/D07/. It was also confirmed that the monitoring plan is compliant with the revised PDD/D07/ and the approved methodology applied by the registered CDM project activity.

CL-1, CL-2, CL-3, CL-4CL-6 and CAR-4 were raised and relevant to the implementation and monitoring equipment of the project, and they were finally closed. For detailed information please refer to Table 1 and Table 2 in Annex 1 of this report.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Data and parameters available at validation:

According to the revised PDD/D07/, some data and parameters are determined at validation and don't need to be monitored during monitoring period for ER calculation, the justification of these data and parameters are described as follows:

For parameter GWP_{CH_4} , the verification team confirms the value 21 tCO₂e/tCH₄ is consistent with the value shown in the IPCC 2006 and the ACM0006 version 6.2, as well as the revised PDD/D07/.

For parameter $EF_{grid,y}$, the verification team has checked the MR/D12/D76/ as well as PDD/D07/ and confirmed that this value is in line with the value pre-fixed in the PDD.

Therefore, the verification team confirms that the above emission factors and default values that are applied in the calculations and available at validation have been justified as accurate and consistent with the values indicated in the PDD/D07/.

Data and parameters monitored:

Monitoring has been carried out in accordance with the monitoring plan contained in the revised PDD/D07/.

According to the revised PDD/D07/, the following data and parameters need to be monitored for determining the ERs and the way the verification team has verified the values in the monitoring reports are described below:

Data/Parameter:	EG _{project,plant,y}
Data unit:	MWh/year
Description:	Net electricity generated in the project plant during the year y
Source of data:	The electricity generated by the project is monitored continuously by two electricity meters (one serves as the main meter while the other serves as the backup meter, both meters also monitor the electricity consumed by the project). The reading of the main electricity meter is read and recorded by the project owner and grid company every month. The values shown in the Record of the initial and ending reading of monthly electricity/D62/ recorded by the project owner were used for EG _{project,plant,y} , while the Transition note of monthly exported electricity/D24/ issued by the grid company and the electricity sales invoices/D23/ were used for cross checking. The accuracy for the meters is 0.2s, which is more accurate than the accuracy in the monitoring plan (0.2).The meters are subjected to annual calibration.
Means of verification (including Cross-check)	Two electricity meters are well installed in the control room of the project site to monitor electricity generated by the project and are checked by verification team. The electricity meters are in good condition. Site engineer checks the condition of the electricity meters every day. During verification it was confirmed that no breakdown occurred during this monitoring period. Record of the initial and ending reading of monthly electricity/D22/ has been checked by the verification team. In this Record, it showed the initial and ending reading of each meter for each month, the multiplying power (79200) and the monthly exported electricity. The verification team has verified the total electricity generated by the project in the Record of the initial and ending reading of monthly electricity/D22/, which is consistent with the value shown in the ERs calculation sheet. And the proof of the initial and ending meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd /D20/D21/ has been checked to confirm the initial and ending reading of monitoring period. Furthermore, the data was cross-checked by the Transition note of monthly exported electricity/D24/ and electricity sales invoices/D23/ as well as the quantity of fuels fired (the efficiency based on energy input and output). The efficiencies of project (the output energy of electricity is divided by the total energy input of fuels combusted) are 16.57% during 30/11/2007-24/12/2008 and 16.18% during 25/12/2008-08/03/2010, which are lower than the maximum efficiency calculated by equipment's manufacturer (28.8%).The verification team deems the project's efficiencies are reasonable. The calibration records/D34/ of the electricity meters have been supplied by the project participant and checked by the verification team.

Data/Parameter:	$BF_{k,y}$
Data unit:	tons of dry maize stalks
Description:	Quantity of biomass residue type k combusted in the project plant during the year y (k=maize stalks)
Source of data:	Three weight belts are installed under the biomass supplying lines in the front of the boiler. The weight of the biomass fed into the boiler is continuously measured and recorded on Biomass daily consuming sheets/D32/ and Biomass consuming statistic sheets/D33/ by PP. The values of the quantity of wet maize stalks are adjusted by the moisture content in order to determine the quantity of dry biomass. The two documents mentioned above were supplied to verification team.
Means of verification (including Cross-check)	Three weight belts are well installed under the biomass supplying lines in the front of the boiler to continuously monitor biomass consumed by the project and have been checked by verification team. The weight belts are in good condition. Site engineer checks the condition of the weight belts every day. During verification it was confirmed that no breakdown occurred during this monitoring period. Biomass consuming statistic sheets/D33/ were checked by the verification team, which is consistent with the value shown in the ERs calculation sheet. The values are crossed checked by Biomass residues purchase statistic sheets/D30/ as well as stock change, and also cross checked with the quantity of electricity generated. The efficiencies of project (the output energy of electricity is divided by the total energy input of fuels combusted) are 16.57% during 30/11/2007-24/12/2008 and 16.18% during 25/12/2008-08/03/2010, which are lower than the maximum efficiency calculated by equipment's manufacturer (28.8%).The verification team deems the project's efficiencies are reasonable. The calibration records/D35/D36/D37/ of the weight belts have been supplied by the project participant and checked by the verification team.

Data/Parameter:	$BF_{T,k,y}$
Data unit:	tons of dry maize stalks
Description:	Quantity of maize stalks that has been transported to the project site during the year y.
Source of data:	One weight bridge is installed at the entrance of the project plant. When every truck comes, the weight of the biomass carried is measured and recorded on Biomass residues purchase statistic sheets/D30/ and Biomass purchase statement sheets/D31/ by PP. The values of the quantity of wet maize stalks that have been transported to the project site are adjusted by the moisture content in order to determine the quantity of dry biomass. The two documents mentioned above were supplied to verification team.
Means of verification (including Cross-check)	One weight bridge is installed at the entrance of the project plant to monitor the biomass fuel transported to the project site and was checked by verification team. The weight bridge is in good condition. Site engineer checks the condition of the weight belts every day. During verification it was confirmed that no breakdown occurred during this

	monitoring period. Biomass residues purchase statistic sheets/D30/ was checked by the verification team, which is consistent with the value shown in the ERs calculation sheet. The values are crossed checked by Biomass residues consuming statistic sheets /D33/ as well as stock change. This data has also been indirectly crosschecked with the quantity of electricity generated. Because this value has been crosschecked with the quantity of biomass consumed, which has been crosschecked with the electricity generated (the efficiency based on energy input and output). The calibration records/D38/ of the weight bridge has been supplied by the project participant and checked by the verification team.
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Data/Parameter:	Moisture content of the biomass residues
Data unit:	% Water content
Description:	Moisture content of each biomass residue type k
Source of data:	An electric blast oven and an electronic balance are well installed and have been checked by the verification team. Every time when the truck comes in the plant, the moisture of the biomass carried is measured by the project owner using the electric blast oven and the electronic balance⁶. The test data was recorded in the Biomass purchase statement sheets/D31/ and Biomass residues purchase statistic sheets/D30/. The electric blast oven and the electronic balance are subjected to an annual calibration.
Means of verification (including Cross-check)	An electric blast oven and an electronic balance are well installed and have been checked by the verification team. The monitoring instruments are in good condition. The monitoring procedures in the laboratory of the plant are in place according to authoritative instructions or guidance. The data from the original record of Biomass residues purchase statistic sheets/D30/ are used in the ER calculation spreadsheet, which has been confirmed by the verification team. Operating procedure/D67/ is also verified to be appropriate. In addition, the calibration records have been supplied for verification/D39/D40/.

Data/Parameter:	$EF_{CH_4,BF}$
Data unit:	tCH ₄ /GJ
Description:	CH ₄ emission factor for the combustion of biomass residues in the project plant.
Source of data:	IPCC Default value in ACM0006 version 06.2
Means of verification (including Cross-check)	The verification team has reviewed the IPCC 2006 default value provided in table 4 of ACM0006, the CH₄ emission factor of combustion of biomass in agriculture is 0.03tCH₄/TJ. Considering a conservativeness factor of 1.37, the CH₄ emission factor in revised PDD is taken as 0.0000411tCH₄/GJ. Since the IPCC 2006 is the latest version, the verification team confirms this value is still the update default value.

⁶ Since none biomass collection station had been constructed during the monitoring period, so the moisture content was only monitored at the project plant.

Data/Parameter:	NCV_k
Data unit:	GJ / ton of dry matter(k=maize stalks)
Description:	Net Calorific Value of maize stalks
Source of data:	Every six months, three samples of the dry biomass residues were analyzed at the same time by the test institutions and reported according to relevant international standards. And the average of NCV of these samples was adopted. The data were recorded in the Testing report for NCV of the biomass residue.
Means of verification (including Cross-check)	The Testing reports for NCV of the biomass residue were checked by the verification team during onsite. It is confirmed that the tests were conducted every six months, which is in accordance with the frequency indicated in the monitoring plan in the revised PDD/D07/. The institute analysing the NCV is Electric Power Supervision and Testing Center of Heilongjiang Province, and the Accreditation Certificate to this institute has been checked by the verification team. And the average value (17.501 GJ/t) was cross checked against the value used in the literature/D80/. The NCV of maize stalks in the literature is 17.247 GJ/ton, which did not differ significantly from the measurement results, and it is considered as conservative when using the bigger value to calculate project emission.

Data/Parameter:	AVD_y
Data unit:	Km
Description:	Average return trip distance (from and to) between biomass fuel supply sites and the project site
Source of data:	The distance of each freight transportation activity from the original to the destination was determined once using vehicle odometer and every time when the truck comes in the plant, the distance between the site to the project is recorded on log books Biomass purchase statement sheets/D31/ and Biomass residues purchase statistic sheets/D30/ by PP at the gate of the plant at the same time. The two documents mentioned above were supplied to verification team..
Means of verification (including Cross-check)	The verification team verified that the data used in the ERs calculation sheet /D14/D78/ and reported in the MR/D12/D76/ are the monthly average distance shown in the Biomass residues purchase statistic sheets/D30/. The data has also been cross-checked by the map/D79/, which shows the distances between the fuel supply sites to the project site. During visual visit and interview, the verification team can also confirm that truck information is correctly recorded.

Data/Parameter:	TL_y
Data unit:	Tons
Description:	Average load of the trucks used for transportation of biomass

Source of data:	One weight bridge is installed at the entrance of the project plant. When every truck comes, the weight of the biomass carried is measured and recorded on Biomass residues purchase statistic sheets/D30/ and Biomass purchase statement sheets/D31/ by PP. The two documents mentioned above were supplied to verification team. TL_y are determined by averaging the weights of each truck carrying biomass on dry base to the project plant. $TL_y = BF_{T,k,y} / n$. n is number of the trucks arrived in every monitoring month.
Means of verification (including Cross-check)	One weight bridge is installed at the entrance of the project plant to monitor the biomass fuel transported to the project site and were checked by verification team. The weight bridge is in good condition. Site engineer checks the condition of the weight bridge every day. During verification it was confirmed that no breakdown occurred during this monitoring period. Biomass residues purchase statistic sheets/D30/ was checked by the verification team, which is consistent with the value shown in the ERs calculation sheet. The values are crossed checked by Biomass residues consuming statistic sheets /D33/ as well as stock change. The calibration records/D38/ of the weight bridge has been supplied by the project participant and checked by the verification team.

Data/Parameter:	$EF_{km,CO_2,y}$
Data unit:	tCO ₂ /km
Description:	Average CO ₂ Emission Factor for transportation of biomass with trucks
Source of data:	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, Moderate Control index for US Heavy Duty Diesel Vehicles in Table 1-32, page 1.75
Means of verification (including Cross-check)	The value of $EF_{km,CO_2,y}$ 0.001011 tCO₂/km is applied for the project, which is sourced from Revised 1996 IPCC on National GHG Inventories/D64/ and consistent with the value applied in the revised PDD/D07/. The verification team has viewed 2006 IPCC Guidelines on National GHG Inventories which is the latest version of IPCC guideline, but couldn't find this parameter, so the verification team confirms that Revised 1996 IPCC guideline is the only source of this data and it is still valid.

Data/Parameter:	$FF_{project\ plant, i,y}$
Data unit:	Tons
Description:	Quantity of fossil fuel type i combusted in the project plant during the year y .
Source of data:	No fossil fuel was designed to combust in the boiler for starting up.
Means of verification (including Cross-check)	No fossil fuel was designed to combust in the boiler for starting up. By the onsite assessment, the verification team has confirmed no diesel has been co-fired in the Project. The verification team has also checked the diesel consumption records/D28/ of the Project and found no diesel co-fired in the Project in the monitoring period.

Data/Parameter:	$FF_{project\ site,\ i,\ y}$
Data unit:	Tons
Description:	Quantity of fossil fuel type i combusted at the project plant for other purposes that are attributable to the project activity during the year y.
Source of data:	The diesel consumed by the project activity is used for clamp machines, loaders and other machines consuming diesel. The amount of consumption of diesel is monitored by one volume flow meter continuously and recorded by the project participants in forms of Diesel consumption record/D28/. The measurement is converted to mass by applying the diesel density of $0.88t/m^3$ which is pre-fixed in the revised PDD. The volume flow meter is subjected to annual calibration.
Means of verification (including Cross-check)	One volume flow meter with accuracy class of 0.5 is well installed on the project site and was checked by the verification team. The raw data recorded in Diesel consumption record/D28/ has been verified with the data applied for ER calculation /D14/D78/. The verification team confirms the data are consistent in both documents and we can also confirm that no other type of fossil fuel was used for the project activity during monitoring period. Furthermore, the invoices of diesel purchased/D27/ have been verified to cross check the quantity of fossil fuel diesel combusted on the project site and the consumed fossil fuel diesel has also been cross-checked with an annual energy balance (that is based on purchased quantities/D27/ and stock changes). The calibration records of the volume meters have been provided for verification/D41/. The verification team can confirmed that the meter in use is well calibrated.

Data/Parameter:	$NCV_{i,y}$
Data unit:	GJ/tonne
Description:	Net calorific value of fossil fuel type i in year y
Source of data:	China Energy Statistical Yearbook 2011
Means of verification (including Cross-check)	The value of NCV_i of diesel is 42.652 GJ/t applied for the project, which is sourced from China Energy Statistical Yearbook 2011/D68/ and revised PDD/D07/.It is confirmed by the verification team that China Energy Statistical Yearbook 2011 is the latest version of Yearbook. This value has also been crosschecked with default value in IPCC 2006 (43GJ/t), which is similar with the value shown in updated China Energy Statistical Yearbook 2011.So, 42.652 GJ/ton was thought to be suitable and reasonable.

Data/Parameter:	$EF_{CO_2,FF,i}$
Data unit:	tCO ₂ e/GJ
Description:	CO ₂ emission factor for fossil fuel type i
Source of data:	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Means of verification (including Cross-check)	The value of $EF_{CO_2,FF,i}$ of diesel is 0.0748 tCO ₂ e/GJ applied for the project, which is sourced from 2006 IPCC Guidelines on National GHG Inventories/D58/ and revised PDD /D07/.It is confirmed by the

	verification team that 2006 IPCC Guidelines on National GHG Inventories is the latest version of IPCC guideline.
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Data/Parameter:	$EF_{burning,CH_4,k,y} * NCV_k$
Data unit:	tCH ₄ /ton biomass
Description:	CH ₄ emission factor for uncontrolled burning of the biomass residues
Source of data:	2006 IPCC Default value in the applied ACM0006
Means of verification (including Cross-check)	The value 0.001971 tCH₄/ton biomass is applied. 0.0027 tCH₄/ton biomass is applied, which is a 2006 IPCC default value indicated in page 44 of ACM0006 version 6.2, and it is adjust by a conservativeness factor 0.73 which is from table 6 of ACM0006 version 6.2. So the value is 0.0027*0.73=0.001971 tCH₄/ton biomass. The verification team confirms that 2006 IPCC Guidelines on National GHG Inventories is the latest version of IPCC guideline.

Data/Parameter:	$EC_{PJ,y}$
Data unit:	MWh/year
Description:	On-site electricity consumption attributable to the project activity during the year y.
Source of data:	The electricity consumed by the project is continuously monitored by two electricity meters (one serves as the main meter while the other serves as the backup meter, both meters also monitor the electricity generated by the project). The reading of the main electricity meter is read and recorded by the project owner and grid company every month. The values shown in the Statistic sheets of exported and imported electricity/D22/ are used for $EC_{PJ,y}$, while the Transition note of monthly purchased grid electricity/D25/ provided by the grid company are used for cross checking. The accuracy for the meters is 0.2s, which is more accurate than the accuracy in the monitoring plan (0.2).The meters are subjected to annual calibration.
Means of verification (including Cross-check)	Two electricity meters are well installed in the control room of the project site to monitor electricity consumed as well as electricity generated by the project and were checked by verification team. The electricity meters are in good condition. Site engineer checks the condition of the electricity meters every day. During verification it was confirmed that no breakdown occurred during this monitoring period. The verification team has verified the total electricity consumed by the project in the Statistic sheets of exported and imported electricity/D22/, which is consistent with the value shown in the ERs calculation sheet. And the proof of the initial and ending meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd /D20/D21/ have been checked to confirm the initial and ending reading of monitoring period. Furthermore, the data was cross-checked by Transition note of monthly purchased grid electricity/D25/. The calibration records/D34/ of the electricity meters have been supplied by the project participant and checked by the verification team.

Data/Parameter:	$EG_{PJ,y}$
Data unit:	MWh per year

Description:	Electricity consumption at the biomass residue storage sites.
Source of data:	There is no electricity consumed by these biomass storage sites.
Means of verification (including Cross-check)	By interviewing with CDM manager/I05/ and project manager/I02/, they confirms there was no biomass storage sites outside the plant during the monitoring period. The verification team also checked the Biomass purchase statement sheets/D31/ during onsite and confirms that the biomass residues are transported to the project site by each farmers directly.

Data/Parameter:	-
Data unit:	tons
Description:	Quantity of biomass residues of type k that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region, k=maize stalks.
Source of data:	Statements regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/ Biomass consuming statistic sheets/D33/
Means of verification (including Cross-check)	The Statements regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/ have been verified by the verification team. The Statistic Data of Biomass in the region were provided by Liaoyuan City Agricultural Committee which is considered as official and authoritative.

Data/Parameter:	-
Data unit:	Tons
Description:	Quantity of biomass residues of type k in the region, k=maize stalks.
Source of data:	Statements regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/
Means of verification (including Cross-check)	The Statements regarding the available and utilized biomass output of Liaoyuan City 2007 to 2010 issued by Liaoyuan City Agricultural Committee/D19/ have been verified by the verification team. The Statistic Data of Biomass in the region were provided by Liaoyuan City Agricultural Committee which is considered as official and authoritative.

Data/Parameter:	$EF_{CO_2,LE}$
Data unit:	tCO ₂ e/GJ
Description:	CO ₂ emission factor of the most carbon intensive fuel used in the country
Source of data:	-

Means of verification (including Cross-check)	This parameter is only used to calculate the leakage effects, in the case that a certain type of biomass residue K used in the project activity and the leakage effects cannot be ruled out with one of the approaches shown in the ACM0006 version 6.2. Since this case is not occurred, so this value is not used for calculation during this monitoring period.
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Data/Parameter:	TDL_y
Data unit:	-
Description:	Average technical transmission and distribution losses for providing electricity to the NEPG in year y
Source of data:	The 20% default value is chosen from "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" in case of scenario A, which is in accordance with ACM0006 version 06.2
Means of verification (including Cross-check)	As per ACM0006 version 06.2, CO ₂ emissions from on-site electricity consumption ($PE_{EC,y}$) should be calculated using the latest approved version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". As per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 01, the default value 20% is used for TDL_y under scenario A. This value is consistent with that indicated in the revised PDD/D07/.

CAR-2, CAR-3 and CL-5 have been raised regarding to the measurement and the value of some parameters, and they are finally closed. For detailed information please refer to Table 1 and Table 2 in Annex 1 of this report.

According to the detailed verification process stated in upper part, the verification team is able to confirm that the monitoring has been carried out in accordance with the monitoring plan contained in the PDD/D07/ and the parameters need to be monitored have been verified against the revised PDD/D07/ and the same in the monitoring report, and found complete and accurate.

Emission reduction calculation:

According to the revised PDD/D07/ and the MR/D12/D76/, the emission reduction ER_y for the project is calculated as follows:

$$ER_y = ER_{heat,y} + ER_{electricity,y} + BE_{biomass,y} - PE_y - L_y$$

Where:

ER_y are emissions reductions of the project activity during the year y (tCO₂ e/yr)
 $ER_{electricity,y}$ are the emission reductions due to displacement of electricity during the year y (tCO₂ e/yr)
 $ER_{heat,y}$ are emission reductions due to displacement of heat during the year y (tCO₂ e/yr)
 $BE_{biomass,y}$ are Baseline emissions due to natural decay or burning of anthropogenic sources of biomass residues during the year y (tCO₂e/yr)
 PE_y are Project emissions during the year y (tCO₂e/yr)
 L_y are Leakage emissions during the year y (tCO₂e/yr)

The detailed aggregated data and calculation process of $ER_{heat,y}$, $ER_{electricity,y}$, $BE_{biomass,y}$, PE_y and L_y are provided in the ER calculation spreadsheet/D14/D78/ and summary calculation of BE_y , PE_y and L_y are stated below:

Baseline Emissions

a) Baseline Emission due to displacement of electricity ($ER_{electricity,y}$)

$$ER_{electricity,y} = EG_{project\ plant,y} * EF_{electricity,y}$$

Where:

$ER_{electricity,y}$ are the emission reductions due to displacement of electricity during the year y (tCO₂e/yr)

$EG_{\text{project plant},y}$ are the net quantity of electricity generation of the project activity during the year y in MWh,
 $EF_{\text{electricity},y}$ is the CO₂ emission factor for the electricity displaced due to the project activity during the year y (CO₂e/ MWh).

Table 4-1 Baseline Emission due to displacement of electricity ($ER_{\text{electricity},y}$)

Period	$EG_{\text{project plant},y}$ (MWh)	$EF_{\text{electricity},y}$ (tCO ₂ e/MWh)	$ER_{\text{electricity},y}$ (tCO ₂ e)
30/11/2007-24/12/2007	5,965.58160	0.996	5,941.719
25/12/2007-24/12/2008	115,790.28120	0.996	115,327.120
25/12/2008-24/12/2009	182,580.28272	0.996	181,849.962
25/12/2009-08/03/2010	22,278.90456	0.996	22,189.789

b) Emission reductions due to displacement of heat ($ER_{\text{heat},y}$)

Since the local heat network had not been finished by local government during the monitoring period, the project was not able to supply heat to any user during this monitoring period. Therefore, there is no heat generated, $ER_{\text{heat},y} = 0$.

c) Baseline emissions due to nature decay or burning of anthropogenic sources of biomass ($BE_{\text{biomass},y}$)

$$BE_{\text{biomass},y} = GWP_{\text{CH}_4} * \sum_k BF_{\text{PJ},k,y} * NCV_k * EF_{\text{burning,CH}_4,k,y}$$

Where:

$BE_{\text{biomass},y}$ is baseline emissions due to natural decay or burning of anthropogenic sources of biomass residue during the year y (tCO₂e/year) ,

GWP_{CH_4} is the Global Warming Potential for methane valid for the relevant commitment period (21tCO₂/tCH₄),

NCV_k is the net calorific value of the biomass residue type k in GJ/ton,

$BF_{\text{PJ},k,y}$ is the incremental quantity of biomass type k used as a result of the project activity in the project plant during the year y (ton),.

$EF_{\text{burning,CH}_4,k,y}$ is CH₄ emission factor for uncontrolled burning of the biomass residue type k during year y (tCH₄/GJ)

$NCV_k * EF_{\text{burning,CH}_4,k,y} = 0.001971 \text{ tCH}_4/\text{ton}$

Table 4-2 Baseline emissions due to nature decay or burning of anthropogenic sources of biomass ($BE_{\text{biomass},y}$)

Period	$BF_{k,y}$ (ton, dry base)	$NCV_k * EF_{\text{burning,CH}_4,i}$ (tCH ₄ /ton)	GWP_{CH_4} (tCO ₂ e/tCH ₄)	$BE_{\text{biomass},y}$ (tCO ₂ e)
30/11/2007-24/12/2007	8,728.78	0.001971	21	361.293
25/12/2007-24/12/2008	141,385.46	0.001971	21	5,852.086
25/12/2008-24/12/2009	229,494.02	0.001971	21	9,498.987
25/12/2009-08/03/2010	32,569.38	0.001971	21	1,348.079

Therefore, the baseline emissions are shown as following table:

Table 4-3 Baseline emissions

Period	$ER_{\text{electricity},y}$ (tCO ₂ e)	$ER_{\text{heat},y}$ (tCO ₂ e)	$BE_{\text{biomass},y}$ (tCO ₂ e)	BE_y (tCO ₂ e)
30/11/2007-24/12/2007	5,941.719	0	361.293	

				6,303.012
25/12/2007-24/12/2008	115,327.120	0	5,852.086	121,179.206
25/12/2008-24/12/2009	181,849.962	0	9,498.987	191,348.948
25/12/2009-08/03/2010	22,189.789	0	1,348.079	23,537.868

Project Emissions

$$PE_y = PET_y + PEFF_y + PE_{EC,y} + PE_{Biomass,CH_4,y} * GWP_{CH_4}$$

Where:

PE_y are Project CO₂ emissions during the year y (tCO₂)

PET_y are Project emission during the year y due to transportation of the biomass to the project (tCO₂)

$PEFF_y$ are the CO₂ emissions during the year y due to fossil fuels co-fired by the generation facility or other fossil fuels consumption at the project site that is attributable to the project activity (tCO₂e/year),

$PE_{EC,y}$ are the CO₂ emissions during the year y due to electricity consumption at the proposed project that is attributable to the project activity (tCO₂e/year) .

GWP_{CH_4} is the global warming potential for methane valid for the relevant commitment period,

$PE_{Biomass,CH_4,y}$ is the CH₄ emissions from the combustion of biomass during the year y(tCH₄/year).

a) Carbon dioxide emissions from combustion of fossil fuels for transportation of maize stalks (PET_y)

$$PET_y = \frac{\sum_k BF_{T,k,y}}{TL_y} * AVD_y * EF_{km,CO_2,y}$$

Where:

PET_y are CO₂ emissions during the year y due to transport of biomass residues to the project plant (tCO₂e/year).

AVD_y is the average round trip distance (from and to) between the biomass residue fuel supply sites and the site of the project plant during the year y (km).

$EF_{km,CO_2,y}$ is the average CO₂ emission factor for the trucks measured in t CO₂e/km.

$BF_{T,k,y}$ is the quantity of biomass residue type k that has been transported to the project site during the year y (ton of dry matter)..

TL_y is the average truck load of the trucks used (ton) during the year y

Table 4-4 Carbon dioxide emissions from combustion of fossil fuels for transportation of maize stalks

Period	$\sum BF_{T,k,y}$ (tons, wet base)	Moisture (%)	$\sum BF_{T,k,y}$ (tons, dry base)	TL _y (tons)	AVD _y (km)	EF _{km,CO₂} (tCO ₂ e/km)	PET _y (tCO ₂ e)
30/11/2007-24/12/2007	11,117.87	15.64%	9,378.94	7.54	78.53	0.001011	98.788
total 30/11/2007-24/12/2007	11,117.87		9,378.94				98.788

25/12/2007-24/01/2008	15,807.59	14.38%	13,533.70	7.98	49.76	0.001011	85.274
25/01/2008-24/02/2008	19,530.82	22.71%	15,095.98	10.81	46.18	0.001011	65.206
25/02/2008-24/03/2008	9,783.91	15.74%	8,243.83	8.89	50.37	0.001011	47.237
25/03/2008-24/04/2008	13,741.21	13.88%	11,834.16	9.50	46.62	0.001011	58.693
25/04/2008-24/05/2008	11,290.18	27.83%	8,148.67	8.64	51.92	0.001011	49.478
25/05/2008-24/06/2008	12,204.72	13.87%	10,512.27	8.63	46.27	0.001011	56.968
25/06/2008-24/07/2008	16,961.38	18.77%	13,778.39	7.32	49.03	0.001011	93.261
25/07/2008-24/08/2008	11,608.72	14.80%	9,890.50	9.56	44.34	0.001011	46.364
25/08/2008-24/09/2008	21,896.28	25.40%	16,334.60	10.75	45.92	0.001011	70.516
25/09/2008-24/10/2008	22,916.18	20.54%	18,209.63	8.24	51.38	0.001011	114.795
25/10/2008-24/11/2008	23,880.20	14.05%	20,524.43	13.38	47.49	0.001011	73.656
25/11/2008-24/12/2008	27,323.04	14.26%	23,427.25	8.96	48.19	0.001011	127.332
total 25/12/2007-24/12/2008	206,944.23		169,533.43				888.780
25/12/2008-24/01/2009	18,476.53	16.64%	15,401.80	8.04	49.51	0.001011	95.891
25/01/2009-24/02/2009	11,158.13	15.83%	9,391.77	8.83	50.74	0.001011	54.580
25/02/2009-24/03/2009	31,347.73	16.91%	26,046.13	7.37	53.81	0.001011	192.347
25/03/2009-24/04/2009	24,291.63	15.28%	20,579.20	7.52	49.21	0.001011	136.095
25/04/2009-24/05/2009	15,154.31	18.65%	12,327.43	9.63	46.92	0.001011	60.695
25/05/2009-24/06/2009	22,843.04	18.03%	18,725.46	10.69	45.90	0.001011	81.261
25/06/2009-24/07/2009	29,366.25	20.01%	23,489.80	13.13	47.30	0.001011	85.525
25/07/2009-24/08/2009	17,937.57	18.05%	14,699.54	9.10	47.75	0.001011	77.968
25/08/2009-24/09/2009	14,823.56	20.22%	11,826.92	8.73	46.46	0.001011	63.631
25/09/2009-24/10/2009	12,900.10	20.21%	10,293.30	9.53	44.23	0.001011	48.310

25/10/2009-24/11/2009	25,740.18	19.11%	20,820.69	9.98	47.34	0.001011	99.842
25/11/2009-24/12/2009	37,316.92	28.99%	26,497.47	8.56	48.46	0.001011	151.689
total 25/12/2008-24/12/2009	261,355.95		210,099.51				1147.834
25/12/2009-24/01/2010	33,640.51	34.30%	22,102.85	7.23	39.41	0.001011	121.802
25/01/2010-24/02/2010	13,035.10	27.83%	9,407.57	8.61	51.82	0.001011	57.245
25/02/2010-08/03/2010	2,386.71	29.37%	1,685.85	6.43	49.23	0.001011	13.044
total 25/12/2009-08/03/2010	49,062.32		33,196.26				192.091

b) Carbon dioxide emissions from on-site consumption of fossil fuels ($PEFF_y$)

$$PEFF_y = \sum_{i,j} FF_{j,i,y} * COEF_{i,y}$$

$$COEF_{i,y} = NCV_{i,y} * EF_{CO2,FF,i}$$

Where:

$FF_{j,i,y}$ is the quantity of fuel type i combusted in process j during the year y (mass or volume unit /yr).

$COEF_{i,y}$ is the CO₂ emission coefficient of fossil fuel type i in year y (tCO₂/mass or volume unit of fossil fuel);

i the fuel types combusted in process j during the year y, which is diesel for this project.

$NCV_{i,y}$ weighted average net calorific value of fossil fuel type i in year y (GJ/mass or volume unit), which is 42.652GJ/ton for diesel.

$EF_{CO2,FF,i}$ CO₂ emission factor for the fossil fuel type i(tCO₂/GJ), which can be estimated at 0.0748 tCO₂/GJ for diesel .

Table 4-5 Carbon dioxide emissions from on-site consumption of fossil fuels ($PEFF_y$)

Period	FF _{project plant,i,y} (liter)	FF _{project site,i,y} (liter)	density of diesel (kg/liter diesel)	FF _{project plant,i,y} + FF _{project site,i,y} (tons, from plant daily logs)	NCV _{diesel,y} (GJ/ton)	EF _{CO2,FF,diesel} (tCO ₂ /GJ)	PEFF _y (tCO ₂ e)
30/11/2007-24/12/2007	0	6,813.49	0.88	5.996	42.652	0.0748	19.129
25/12/2007-24/12/2008	0	145,476.86	0.88	128.019	42.652	0.0748	408.427
25/12/2008-24/12/2009	0	201,767	0.88	177.555	42.652	0.0748	566.466
25/12/2009-08/03/2010	0	32,247.65	0.88	28.378	42.652	0.0748	90.536

c) Carbon dioxide emissions from electricity consumption ($PE_{EC,y}$)

$$PE_{EC,y} = (EC_{PJ,y} + EG_{PJ,y}) \times EF_{grid,y} \times (1 + TDL_y)$$

Where:

$PE_{EC,y}$ is the project emissions from electricity consumption by the project activity during the year y (tCO₂e/year).

$EC_{PJ,y}$ is the quantity of electricity consumed by the project activity during the year y (MWh),

$EG_{PJ,y}$ is the quantity of electricity consumption at the biomass residue storage sites (MWh)

$EF_{grid,y}$ is the emission factor for the grid in year y (tCO₂e/ MWh)

TDL_y is the average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site. According to the tool, default value of 20% is implemented for the proposed project.

Table 4-6 Carbon dioxide emissions from electricity consumption ($PE_{EC,y}$)

Period	Electricity consumed (MWh)	$EF_{grid,y}$ (tCO ₂ e/MWh)	TDL_y	$PE_{EC,y}$ (tCO ₂ e)
30/11/2007-24/12/2007	130.823	0.996	20%	156.359
25/12/2007-24/12/2008	642.312	0.996	20%	767.691
25/12/2008-24/12/2009	346.896	0.996	20%	414.610
25/12/2009-08/03/2010	264.86856	0.996	20%	316.571

d) Methane emissions from combustion of maize stalks ($PE_{Biomass,CH_4,y}$)

$$PE_{Biomass,CH_4,y} = EF_{CH_4,BF} * \sum_k BF_{k,y} * NCV_k$$

Where:

$PE_{Biomass,CH_4,y}$ are methane emissions from combustion of maize stalks (tCO₂e/year),

$BF_{k,y}$ is the quantity of maize stalks used as fuel in the project plant during the year y in tons in dry matter (ton),

NCV_k is the net calorific value of the maize stalks in TJ per tons

$EF_{CH_4,BF}$ is the CH₄ emission factor for controlled burning of the maize stalks in tCH₄/TJ.

Methane emissions in both the baseline and project scenario are calculated from the amount of biomass residue burned in the project plant. The quantities and energy content are monitored. With the $GWP_{CH_4} = 21$, and the methane emissions factor for burning biomass in a controlled manner $EF_{CH_4,i} = 30 \text{ kgCH}_4/\text{TJ}$ with a conservativeness factor of 1.37.

Table 4-7 Methane emissions from combustion of maize stalks ($GWP_{CH_4} * PE_{Biomass,CH_4,y}$)

Period	$BF_{k,y}(\text{ton})$ (wet base)	Moisture (%)	$BF_{k,y}(\text{ton})$ (dry base)	NCV_k (GJ/ton) (dry base)	$EF_{CH_4,BF}$ (tCH ₄ /GJ)	GWP (tCO ₂ e/CH ₄)	$GWP_{CH_4} * PE_{Biomass,CH_4,y}$ (tCO ₂ e)
30/11/2007-24/12/2007	10,347.17	15.64%	8,728.78	17.810	0.0000411	21	134.177

total 30/11/2007-24/12/2007	10,347.17		8,728.78				134.177
25/12/2007-24/01/2008	9,284.51	14.38%	7,948.95	17.810	0.0000411	21	122.190
25/01/2008-24/02/2008	10,382.47	22.71%	8,024.94	17.810	0.0000411	21	123.358
25/02/2008-24/03/2008	12,478.23	15.74%	10,514.04	17.810	0.0000411	21	161.620
25/03/2008-24/04/2008	12,918.35	13.88%	11,125.50	17.670	0.0000411	21	169.675
25/04/2008-24/05/2008	0.00	27.83%	0.00	17.670	0.0000411	21	0.000
25/05/2008-24/06/2008	11,357.18	13.87%	9,782.26	17.670	0.0000411	21	149.189
25/06/2008-24/07/2008	11,242.71	18.77%	9,132.89	17.670	0.0000411	21	139.286
25/07/2008-24/08/2008	10,484.48	14.80%	8,932.66	17.670	0.0000411	21	136.232
25/08/2008-24/09/2008	23,865.20	25.40%	17,803.41	17.380	0.0000411	21	267.063
25/09/2008-24/10/2008	21,616.18	20.54%	17,176.63	17.380	0.0000411	21	257.661
25/10/2008-24/11/2008	21,990.77	14.05%	18,900.51	17.380	0.0000411	21	283.521
25/11/2008-24/12/2008	25,709.37	14.26%	22,043.67	17.380	0.0000411	21	330.670
total 25/12/2007-24/12/2008	171,329.45		141,385.46				2,140.463
25/12/2008-24/01/2009	25,357.28	16.64%	21,137.51	17.380	0.0000411	21	317.077
25/01/2009-24/02/2009	26,369.09	15.83%	22,194.80	17.380	0.0000411	21	332.937
25/02/2009-24/03/2009	24,156.13	16.91%	20,070.79	17.570	0.0000411	21	304.367
25/03/2009-24/04/2009	18,838.48	15.28%	15,959.44	17.570	0.0000411	21	242.020
25/04/2009-24/05/2009	26,528.48	18.65%	21,579.87	17.570	0.0000411	21	327.251
25/05/2009-24/06/2009	29,381.38	18.03%	24,085.23	17.570	0.0000411	21	365.244
25/06/2009-24/07/2009	28,351.07	20.01%	22,677.77	17.570	0.0000411	21	343.901
25/07/2009-24/08/2009	11,079.38	18.05%	9,079.36	17.570	0.0000411	21	137.686
25/08/2009-24/09/2009	25,102.33	20.22%	20,027.79	17.250	0.0000411	21	298.183

25/09/2009-24/10/2009	20,579.00	20.21%	16,420.48	17.250	0.0000411	21	244.476
25/10/2009-24/11/2009	24,838.22	19.11%	20,091.11	17.250	0.0000411	21	299.126
25/11/2009-24/12/2009	22,772.34	28.99%	16,169.86	17.250	0.0000411	21	240.745
total 25/12/2008-24/12/2009	283,353.18		229,494.02				3,453.013
25/12/2009-24/01/2010	24,545.85	34.30%	16,127.38	17.250	0.0000411	21	240.112
25/01/2010-24/02/2010	20,814.46	27.83%	15,022.01	17.250	0.0000411	21	223.655
25/02/2010-08/03/2010	2,010.33	29.37%	1,419.99	17.250	0.0000411	21	21.142
total 25/12/2009-08/03/2010	47,370.64		32,569.38				484.908

Therefore, the project emissions are shown as following table:

Table 4-8 Project emissions

Period	PET _y (tCO ₂ e)	PEFF _y (tCO ₂ e)	GWP _{CH4} * PE _{biomass,CH4,y} (tCO ₂ e)	PE _{EC,y} (tCO ₂ e)	PE _y (tCO ₂ e)
30/11/2007-24/12/2007	98.788	19.129	134.177	156.359	408.453
25/12/2007-24/12/2008	888.780	408.427	2,140.463	767.691	4,205.362
25/12/2008-24/12/2009	1,147.834	566.466	3,453.013	414.610	5,581.923
25/12/2009-08/03/2010	192.091	90.536	484.908	316.571	1,084.106

Leakage

Table 4-9 Demonstration of an abundant surplus of the maize stalks in the region of the project activity which is not utilized.

Unit: 10 ⁴ ton	Year 2007	Year 2008	Year 2009	Year 2010
Available Biomass in the region	135.8	141.3	149.7	160
Biomass utilized out of the project	47.5	51.8	56.9	47.3
Biomass utilized by the project	1.035	17.133	28.335	20.074
Total biomass utilized, including the project	48.535	68.933	85.235	67.374
Available Biomass/Total biomass utilized	280%	205%	176%	237%
Available Biomass/Total biomass utilized -	180%	105%	76%	137%

100%				
Abundant surplus? (More than 25%)	Yes	Yes	Yes	Yes

Summary of Emission Reduction

Years	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
30/11/2007-24/12/2007	6,303	409	0	5,894
25/12/2007-24/12/2008	121,179	4,206	0	116,973
25/12/2008-24/12/2009	191,348	5,582	0	185,766
25/12/2009-08/03/2010	23,537	1,085	0	22,452
Total	342,367	11,282	0	331,085

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The detailed type of evidences provided and quality of the evidences has been described in section 4.2 above. All necessary documentation is collected, referenced and is easily accessible in hard-copy or electronic format. The data pertaining to the monitored parameters are maintained in the identified internal records and consistent with the values stated in the Monitoring Report/D12/D76/. Key data have been cross-checked via external sources, such as invoices.

4.4 Management and Operational System

The management system and quality assurance procedures have been stipulated in the CDM Monitoring Management Regulation/D15/. This Regulation/D15/ sets the responsibilities of the monitoring team and the procedures of data collection, managing, submission and archiving, training as well as monitoring equipment management. During onsite inspection, the verification team confirms that the management system of the project is in place, and the responsibilities is properly identified and in place. The staff is well trained and qualified, which is verified during the onsite visit, interviewing with the CDM managers as well as reviewing the training records/D16/.

Therefore, re-consult Ltd confirms that the monitoring is in accordance with the monitoring plan in the revised PDD/D07/.

5 VERIFICATION CONCLUSION

re-consult Ltd. has performed the first verification of VCS “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project” which is a project with the registry reference number 2563 as CDM project for the monitoring period between 30/11/2007 and 08/03/2010. The scope of the activities cover the verification and certification of GHG emissions reductions reported in Monitoring Report Version 2.2 dated 20/08/2013 of “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project”.

National Bio Energy Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the final 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 GHG emission reduction management of the Project. The development and maintenance of the records and the related monitoring procedures are in accordance with the Monitoring Report Version 2.1.

The verification has been performed by a verification team consisting of “Mr. Jindong LIANG, Ms. Dan LI, Mr. Linwei Ma and Johann THALER”, and the project activity was checked against the VCS version 3.3, applicable rules and regulations of CDM including Section I of CDM Modalities and Procedures, the relevant guidance and decisions of the COP/MOP, CDM EB and VCS Organization, CDM Validation and Verification Standard version 04.0, CDM Project Standard version 04.0 and CDM Project Cycle Procedure version 04.0,.

re-consult Ltd. hereby confirms that the project activity “Jilin Liaoyuan 50MW Level Biomass Cogeneration Project” in P.R. China, is implemented in accordance with the revised PDD version 09 dated 24/05/2010. The monitoring system is in place and the emission reductions are calculated without material misstatements as per the applied approved methodology, which is ACM0006 Version 06.2 and ACM0002 Version 07.

re-consult confirms the following based on the results of document review and on-site assessment:

Project Title	Jilin Liaoyuan 50MW Level Biomass Cogeneration Project
Applicable Period	30/11/2007 to 08/03/2010
Baseline Emissions	342,367tCO ₂ e
Project Emissions	11,282tCO ₂ e
Leakage Emissions	0 tCO ₂ e
Net GHG Emission Reductions or Removals Emission Reductions	331,085tCO ₂ e



Jindong LIANG
Team Leader
20.08.2013



Johann THALER
ITR
20.08.2013



Anil SÖYLER
Certification Manager
20.08.2013

ANNEX 1: VERIFICATION PROTOCOL

Table 1 – VCS Monitoring Report (MR) Form Requirements

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
Cover Page and General Requirements					
1. Are all items in the box at the bottom of the cover page completed using Arial 10pt, black, regular (non-italic) font?	VCS Version 3.3	DR	Yes. By checking the MR/D12/ provided by the PO, it is confirmed that all items in the box at the bottom of the cover page are using the correct font.	OK	OK
2. Are the followings provided at the cover page in a tabular format?	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed that the following are provided at the cover page in a tabular format.	OK	OK
2.1. Name of the project?	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed the name of the project, Jilin Liaoyuan 50MW Level Biomass Cogeneration Project, is listed on the cover page in a tabular format.	OK	OK
2.2. Version number of the VCS MR?	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed the version number of the project, version 1.0, is listed on the cover page in a tabular format.	OK	OK
2.3. Report ID of the document	VCS Version 3.3	DR	N/A	OK	OK
2.4. The issuance date of the document in DD-Month-YYYY format?	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed the issuance date of the project, 15/06/2013, is listed on the cover page in a tabular format.	OK	OK
2.5. VCS project database ID, if registered		DR	N.A. The Project has not been registered as VCS project, so there is no report ID.	OK	OK
2.6. Monitoring period in DD-Month-YYYY to DD-Month-YYYY format	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed the monitoring period, 30/11/2007 - 08/03/2010, is listed on the cover page in a tabular format.	OK	OK
2.7. Individual or entity that prepared the document?	VCS Version 3.3	DR	Yes, by checking the MR/D12/, it is confirmed the entity that prepared the document, National Bio Energy Co., Ltd., is listed on the cover page in a tabular format.	OK	OK
2.8. Physical address, telephone, email, website?	VCS Version 3.3	DR	Yes, the physical address, telephone, email and website are listed on the cover page.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

v3.2

R-E-C-024 / 25.04.2013 – 01

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
3. Is this box available on the title page of the final document?	VCS Version 3.3	DR	Yes, it is confirmed by checking the MR/D12/ that the box is available on the title page of the final document.	OK	OK
4. Is the VCS MR used as a basis for verification prepared in accordance with the latest template and guidance from the VCS?	VCS Version 3.3	DR	Yes, it is confirmed that the VCS MR/D12/ is prepared in accordance with the latest template and guidance from the VCS by checking the MR/D12/ against the latest version of VCS MR template/D10/ and VCS/D01/.	OK	OK
5. Are the VCS MR and other documents required under the VCS Program in English?	VCS Version 3.3	DR	Yes, by checking the VCS MR/D12/, PD/D13/ and the ER spreadsheet/D13/, it is confirmed that they are in English.	OK	OK
1. PROJECT DETAILS					
1.1. Summary Description of Project					
1.1.1. Has a brief summary of the project description provided under Section 1.1 of the MR?	VCS Version 3.3 EB70 Report Annex 11	DR	Yes, a brief summary of the project description has been provided under Section 1.1 of MR/D12/.	OK	OK
1.1.2. Has the purpose of the project activity and the measures taken to reduce greenhouse gas emissions been provided under section 1.1 of the MR?	VCS Version 3.3 EB70 Report Annex 11	DR	Yes, by checking the section 1.1 of MR/D12/, it is confirmed that the project utilizes local surplus biomass residues (mainly as maize stalk) for generating heat and electricity. That is the purpose of the project activity and the measures taken to reduce GHG emission.	OK	OK
1.1.3. Has a brief description of the installed technology and equipment been provided under Section 1.1 of the MR?	VCS Version 3.3 EB70 Report Annex 11	DR	Yes, by checking the section 1.1 of MR/D12/, it is confirmed that the project will install one 130t/h boiler and one 30MW steam turbine generator which is consistent with the revised PDD/D07/	OK	OK
1.1.4. Has the relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.) been provided under Section 1.1 of the MR?	VCS Version 3.3 EB70 Report Annex 11	DR	No. The relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.) have not been provided under Section 1.1 of the MR/D12/. CL-1 is raised. CL-1 is closed and please refer to table 2.	~~CL-1~~	OK
1.1.5. Has the total emissions reductions achieved in this monitoring period been provided under Section 1.1 of the MR?	VCS Version 3.3 EB70 Report Annex 11	DR	No. The total emission reductions achieved in this monitoring period has not been provided under section 1.1 of the MR/D12/. CL-2 is raised. CL-2 is closed and please refer to table 2.	~~CL-2~~	OK

*DR= Document Review, I= Interview, SV=Site Visit

v3.2

R-E-C-024 / 06.05.2013 – 02

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
1.2. Sectoral Scope and Project Type					
1.2.1. Is it indicated whether this a grouped project under Section 1.2 of the MR?	VCS Version 3.3	DR/SV	Yes. By checking the section 1.2 of MR/D12/, it stated that the project is not a grouped project, which is checked and confirmed by the validation team during the onsite visit.	OK	OK
1.2.2. Is the sectoral scope(s) applicable to the project indicated?	VCS Version 3.3	DR	Yes. The sectoral scope 1: energy industries (renewable sources) is applicable to the project, which is verified by checking the revised PDD/D07/.	OK	OK
1.2.3. Is the category of the project activity specified?	VCS Version 3.3	DR	Yes. The category of the project activity is specified as renewable sources.	OK	OK
1.3. Project Proponent					
1.3.1. Are the contact information and roles/responsibilities for the project proponent(s) provided?	VCS Version 3.3	DR	Yes. By checking the section 1.3 of MR/D12/, it is confirmed that the contact information and roles/responsibilities for the project proponent has been provided.	OK	OK
1.4. Other Entities Involved in the Project					
1.4.1. Are the contact information and roles/responsibilities for any other entities involved in the development of the project provided?	VCS Version 3.3	DR	No. There are no other entities involved in the project.	OK	OK
1.5. Project Start Date					
1.5.1. Is the project start date (the date on which the project began reducing or removing GHG emissions) indicated in day, month and year format?	VCS Version 3.3	DR/I	Yes. The project start date, 30/11/2007, is indicated in day, month and year format, and the date is verified by cross checking the Commission quality supervising check report/D18/ and the interviews with PP.	OK	OK
1.6. Project Crediting Period					

*DR= Document Review, I= Interview, SV=Site Visit

v3.2

R-E-C-024 / 06.05.2013 – 02

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
1.6.1. Is the total crediting period including the day, month and year for the start and end dates and the total number of years indicated?	VCS Version 3.3	DR	Yes. The start date of the project crediting period, 30/11/2007, and the end date of the project crediting period, 08/03/2010, and the total number of years, 2 year, 3 months and 9 days, is indicated in the section 1.6 of MR /D12/.	OK	OK
1.7. Project Location					
1.7.1. Has complete information on the location of the project activity, including town, city, country and GPS coordinates been provided under Section 1.7 of the MR?	VCS Version 3.3	DR	Yes. In section 1.7, the complete information on the location and GPS coordinates are provided under section 1.7 of the MR, which is verified as consistent with the information shown in the registered revised PDD/D07/ and CDM validation report/D08/.	OK	OK
1.8. Title and Reference of Methodology					
1.8.1. Is the following information provided regarding the methodology(s) applied to the project?	VCS Version 3.3	DR	Yes. The following information provided in section 1.8 of MR/D12/.	OK	OK
1.8.1.1. The title of the methodology(ies)	VCS Version 3.3	DR	Yes. The title of the methodology shown in the section 1.8 of MR/D12/ is ACM0006 (ver 6.2): "Consolidated methodology for grid-connected electricity generation from biomass residues", which is verified as consistent as that shown in the revised CDM PDD/D07/.	OK	OK
1.8.1.2. The reference of the methodology(ies)	VCS Version 3.3	DR	Yes. The reference of the methodology is provided.	OK	OK
1.8.1.3. The version number of the methodology(ies)	VCS Version 3.3	DR	Yes. The version number of the methodology, version 06.2, is provided in the section 1.8 of MR/D12/, which is verified as consistent as that shown in the revised CDM PDD/D07/.	OK	OK
				OK	OK
2. IMPLEMENTATION STATUS					
2.1. Implementation Status of The Project Activity					
2.1.1. Has a description of the implementation and operational status of the project as of this monitoring period been provided under section 2.1 of the MR?	EB70 Report Annex 11	DR	The description of the implementation including construction date, and operation date and operational status of the project has been provided in detail and clearly under section 2.1 of the MR.	OK	OK
2.1.2. Has the installed technology(ies), technical process and equipment, including the diagrams, where appropriate, been included in	EB70 Report Annex 11	DR	Yes. The installed technology, technical process and equipment, including the diagrams has been included in section 2.1 of the MR.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

v3.2

R-E-C-024 / 06.05.2013 – 02

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
section 2.1 of the MR?					
2.1.3. Has the starting date of operation of the project activity been provided under Section 2.1 of the MR?	EB70 Report Annex 2 § 191b	DR	Yes. The starting date of the operation of the project activity, 30/11/2007, is provided under section 2.1 of the MR, and the date is verified by cross checking the Commission quality supervising check report and the interviews with PP.	OK	OK
2.1.4. Does the project activity consist of more than one site?	EB70 Report Annex 2 § 191b	SV	No. The project only consists of one site which is verified by the site visit.	OK	OK
2.1.5. If the project activity consists of more than one site, has the status of implementation and starting date of operation for each site been clearly described under Section 2.1 of the MR?	EB70 Report Annex 2 § 191b	DR	N.A.	OK	OK
2.1.6. Is the implementation of the project activity planned to be realized in different phases? (Phased implementation)	EB70 Report Annex 2 § 191b	I/SV	No. The implementation of the project activity is not realized in different phases, which is verified by the interviews and inspection during onsite.	OK	OK
2.1.7. If the implementation of the project activity planned to be realized in different phases, has the progress of the proposed VCS project activity achieved in each phase been indicated under Section 2.1 of the MR?	EB70 Report Annex 2 § 191b	DR	N.A.	OK	OK
2.1.8. Has a brief description of the events or situations that occurred during the monitoring period, which may affect the applicability of the methodology been provided under Section 2.1 of the MR?	EB70 Report Annex 2 § 191c	DR	Yes. Under section 2.1 of MR/D12/, it is indicated that there is no long term overhaul and equipment exchange during the monitoring period and no special events happened, which may affect the applicability of the methodology.	OK	OK
2.1.9. Has a brief description of how the issues resulting from these events or situations are being addressed been provided under Section 2.1 of the MR?	EB70 Report Annex 2 § 191c		N.A.	OK	OK
2.1.10. Do the actual project activity and its operation comply with the registered PD and/or an approved revised PD?	EB70 Report Annex 3 § 226 § 230	DR/SV	The manufacturer of the Boiler is not consistent with the name on the nameplate (Harbin Boiler Group Co., Ltd.), please clarify. CL-3 is raised. CL-3 is closed and please refer to table 2.	~~CL-3~~	OK

*DR= Document Review, I= Interview, SV=Site Visit

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
2.1.11. Have the PPs implemented and operated the VCS project activity as per the descriptions contained in the registered PD?	EB70 Report Annex 3 § 226		Yes. By checking the PDD/D07/ as well as inspeciton during onsite, It is confirmed that the PPs implemented and operated the VCS project activity as per the descriptions contained in the revised PDD.	OK	OK
2.1.12. Has the installed technology(ies), technical process and equipment, including the diagrams, where appropriate, been included in Section 2.1 of the MR?	EB70 Report Annex 11	DR	Yes. Please refer to 2.1.2	OK	OK
2.2. Deviations from the Monitoring Plan					
2.2.1. Are there any deviations from the monitoring plan?	VCS Version 3.3	DR	By checking the MR against the monitoring plan shown in the revised CDM PDD/D07/, it is found that the monitoring plan mentions weight meters of type SCS-30 whereas the MR indicates the type of SCS-50t-QC for the weight bridge and HY2105 and 6001B for the weight belts; clarify this small deviation; CL-4 was raised. CL-4 is closed. Please refer to table 2.	CL-4	OK
2.2.2. If there are any deviations from the monitoring plan, are the deviations from the monitoring plan in the project description described properly?	VCS Version 3.3	DR	Pending on CL-4. CL-4 is closed and by checking the revised the MR, it is confirmed that the deviations from the monitoring plan in the project description are described properly.	CL-4	OK
2.2.3. If there are any deviations from the monitoring plan, are the deviations from the monitoring plan in the project description justified properly and clearly?	VCS Version 3.3	DR	Pending on CL-4. CL-4 is closed and by checking the revised the MR, it is confirmed that the deviations from the monitoring plan in the project description are justified properly and clearly.	CL-4	OK
2.3. Grouped Projects					
2.3.1. Is this a grouped project?	VCS Version 3.3	DR	N.A	OK	OK
2.3.2. If it is a grouped project, is the relevant information about new instances of the project activity(s) provided?	VCS Version 3.3	DR	N.A	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
2.3.3. If it is a grouped project, is it demonstrated clearly and transparently that each new instance of the project activity(s) meets the eligibility criteria set out in the project description?	VCS Version 3.3	DR	N.A	OK	OK
3. DATA AND PARAMETERS					
3.1. Data and Parameters Available at Validation					
3.1.1. Has all the data that is determined only once for the crediting period but are used after registration of the project, been listed under Section 3.1 using the tabular format?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/ and the revised CDM PDD/D07/, the data that is determined only once for the crediting period but are used after registration of the project has been listed under section 3.1 using the tabular format.	OK	OK
3.1.2. If all the data that is determined only once for the crediting period but are used after registration of the project, does the listed data include all the parameters used to calculate baseline, project and leakage emissions as well as other relevant parameters required by the approved methodology and the monitoring plan?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/ and the revised CDM PDD/D07/, it is confirmed that the listed data includes all the parameters used to calculate baseline, project and leakage emissions as well as other relevant parameters required by ACM0006 version 06.2 and the monitoring plan shown in CDM PDD/D07/.	OK	OK
3.1.3. In the data/parameter tables provided under Section 3.1 of the MR, for each data has the name of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data has the name of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.1.4. In the data/parameter tables provided under Section 3.1 of the MR, for each data has the unit of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data has the unit of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.1.5. In the data/parameter tables provided under Section 3.1 of the MR, for each data has the description of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data has the description of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.1.6. In the data/parameter tables provided under Section 3.1 of the MR, for each data has the	EB70 Report	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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source of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	Annex 11 VCS Version 3.3		has the source of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.		
3.1.7. In the data/parameter tables provided under Section 3.1 of the MR, for each data has the values applied of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data has the values of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.1.8. In the data/parameter tables provided under Section 3.1 of the MR, for each data has it been indicated what the data/parameters are used for (baseline/project /leakage emission calculations)?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that for each data has the purpose of the data/parameters given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.2. Data and Parameters Monitored					
3.2.1. Has all the data that are monitored been listed under Section 3.2 using the tabular format?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/ against the PDD/D07/, it is found the parameter TDL_y which is a monitored parameters in the PDD/D07/ is not listed under section 3.2 of the MR. CAR-2 is raised. CAR-2 is closed and please refer to table 2.	~~CAR-2~~	OK
3.2.2. In the data/parameter tables provided under section 3.2 of the MR, for each data has the name of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is confirmed that each data's name has been given in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/.	OK	OK
3.2.3. In the data/parameter tables provided under section 3.2 of the MR, for each data has the unit of the data/parameters given in accordance with the registered VCS PD and the applied approved methodology?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/, it is found that the unit of CH ₄ emission factor for uncontrolled burning of the biomass residues is not in accordance with the revised CDM PDD/D07/ and ACM0006 version 06.2/D03/. But the parameter in the PDD is "EF _{burning,CH₄,k,y} " and the relevant unit is "tCH ₄ /GJ", while the value provided in the PDD is the product of "EF _{burning,CH₄,k,y} *NCV _k ", not EF _{burning,CH₄,k,y} , and the unit of the value is "tCH ₄ /ton biomass". In the MR/D12/, the parameter "EF _{burning,CH₄,k,y} *NCV _k " is put on the title directly, and the corresponding unit "tCH ₄ /ton biomass" is considered as correct.	OK	OK
3.2.4. In the data/parameter tables provided under section 3.2 of the MR, for each data has it been described how the data is monitored?	EB70 Report Annex 11	DR	No. By checking the MR/D12/, it is found the measurement methods and procedures for parameters BF _{k,y} BF _{T,k,y} and TL _y are not	~~CL-5~~	OK

*DR= Document Review, I= Interview, SV=Site Visit

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	VCS Version 3.3		described clearly under section 3.2 of MR. CL-5 is raised. CL-5 is closed and please refer to table 2.		
3.2.5. In the data/parameter tables provided under section 3.2 of the MR, for each data has the source of data been indicated (like logbooks, daily records, surveys, etc.)?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, it is confirmed that for each data the source of the data has given in accordance with the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/.	OK	OK
3.2.6. In the data/parameter tables provided under section 3.2 of the MR, for each data has the values of the monitoring parameter been indicated?	EB70 Report Annex 11 VCS Version 3.3	DR	Under section 3.2, the following issues are found regarding to the values for the parameters: -for the parameter $BF_{k,y}$ and $BF_{T,k,y}$, the value of period 30/11/2007-24/12/2007 shown in the MR is not correct. By checking the Biomass purchase statement sheets/D30/ as well as Biomass consuming statistic sheets/D33/, this value only covers the period of 01/12/2007-24/12/2007, but the values in 30/11/2007 should be also included. -for the parameter $BF_{k,y}$ and $BF_{T,k,y}$, the values of period 25/12/2008-24/12/2009 and 25/12/2009-08/03/2010 are not in accordance with those shown in the ER calculation spreadsheet/D14/. -for the Quantity of biomass residues of type k that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region and the Quantity of biomass residues of type k in the region, only the year of 2007 to 2009 are provided. As the monitoring period also covers parts of year 2010, so please provide the corresponding values in 2010. CAR-3 is raised. CAR-3 is closed and please refer to table 2.	CAR-3	OK
3.2.7. In the data/parameter tables provided under section 3.2 of the MR, for each data has the QA/QC procedures being applied been given?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, it is confirmed that for each data has the QA/QC under section 3.2 of the MR, which is accordance with the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/	OK	OK
3.2.8. In the data/parameter tables provided under section 3.2 of the MR, for each data has it been indicated what types of equipment are used to monitor each parameter, including following, if applicable as per the monitoring plan?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, it is confirmed that for each data it has been indicated what type of equipment are used to monitor under section 3.2 of the MR, which is accordance with the revised CDM PDD/D07/ as well as ACM0006 version 06.2/D03/.	OK	OK
3.2.8.1. Details on accuracy class	EB70	DR	Yes. By checking the MR/D12/, it is confirmed that the accuracy	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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	Report Annex 11 VCS Version 3.3		class of the monitoring equipment have been provided and it is verified as correct and in accordance with the monitoring plan/D07/ by checking the monitoring equipment/D46/D47/D48/D49//D50//D51/D52/D53/ and calibration certificates /D34/D35/D36/D37/D38/D39/D40/D41/ during onsite visit.		
3.2.8.2. Calibration frequency	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, it is confirmed that the calibration frequency of the monitoring equipment have been provided and it is verified as correct and in accordance with the monitoring plan/D07/ by checking the calibration certificates /D34/D35/D36/D37/D38/D39/D40/D41/ during onsite visit.	OK	OK
3.2.8.3. Serial number	EB70 Report Annex 11 VCS Version 3.3	DR	In section 3.2 of the MR, for parameters of $BF_{k,y}$, $FF_{project\ site, i,y}$, by checking the monitoring equipment/D35//D36/ and calibration certificates /D52/D53/, it is found that the serial NO. of the weight belt 1 and weight belt 2 and the flow meters are not indicated correctly. CAR-4 is raised. CAR-4 is closed and please refer to table 2.	CAR-4	OK
3.2.8.4. Calibration date	EB70 Report Annex 11 VCS Version 3.3	DR	The calibration date and the valid period of the weight belt 1 shown in the section 3.2 of the MR/D12/ are not consistent with the date shown in the calibration certificate, please clarify. CL-6 is raised. CL-6 is closed and please refer to table 2.	CL-6	OK
3.2.8.5. Validity of the calibration	EB70 Report Annex 11 VCS Version 3.3	DR	Please refer to CL-6. CL-6 is closed and please refer to table 2.	CL-6	OK
3.2.9. In the data/parameter tables provided under section 3.2 of the MR, for each data has the measurement and recording frequency been indicated?	EB70 Report Annex 11 VCS Version 3.3	DR	Refer to CL-5 in 3.2.4. CL-5 is closed and please refer to table 2.	CL-5	OK
3.2.10. Is the calibration frequency for measuring equipment specified in the monitoring methodology, guidance provided by the Board or the monitoring plan?	EB70 Report Annex 3 § 241 VCS Version 3.3	DR	Yes. By checking the revised CDM PDD/D07/, it is confirmed that the calibration frequency for measuring equipment are specified in the revised CDM PDD/D07/.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
3.2.11. If the calibration frequency for measuring equipment isn't specified in the monitoring methodology, guidance provided by the Board or the monitoring plan, are the equipment calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification?	EB70 Report Annex 3 § 242 VCS Version 3.3	DR	N.A. The calibration frequency for measuring equipment is specified in the monitoring plan in the revised CDM PDD/D07/, so this item is not applicable.	OK	OK
3.2.12. If neither local/national standards nor the manufacturer's specification are available, have the international standards been used?	EB70 Report Annex 3 § 242 VCS Version 3.3	DR	N.A. The calibration frequency for measuring equipment is specified in the monitoring plan in the revised CDM PDD/D07/, so this item is not applicable.	OK	OK
3.2.13. Is the calibration of the measuring equipment that have an impact on the claimed emission reductions conducted by the PPs at a frequency specified in the applied monitoring methodology and/or the monitoring plan?	EB70 Report Annex 3 § 237 VCS Version 3.3	DR	Yes. By checking the certificates /D34/D35/D36/D37/D38/D39/D40/D41/, it is confirmed that the calibration of the measuring equipment have been conducted by the PPs at a frequency which is in compliance with that specified in the ACM0006 version 06.2/D03/ and monitoring plan/D07/.	OK	OK
3.2.14. Has the calibration been delayed and has the calibration been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available) for the certain monitoring period?	EB70 Report Annex 3 § 238 VCS Version 3.3	DR	No. By checking the certificates /D34/D35/D36/D37/D38/D39/D40/D41/, it is confirmed that the calibration has not been delayed, and the validity period of the calibration has been covered the whole monitoring period.	OK	OK
3.2.15. If the calibration is delayed and if the calibration is implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available) for the certain monitoring period, are one of the following approaches adopted by the PPs for the calculation of emission reductions?	EB70 Report Annex 3 § 238 VCS Version 3.3	DR	N.A. By checking the certificates/D34/D35/D36/D37/D38/D39/D40/D41/, it is confirmed that the calibration has not been delayed, and the validity period of the calibration has been covered the whole monitoring period.	OK	OK
3.2.15.1. Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration, if the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error; or	EB70 Report Annex 3 § 238 VCS Version 3.3	DR	N.A.	OK	OK

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
3.2.15.2. Applying the error identified in the delayed calibration test, if the error is beyond the maximum permissible error of the measuring equipment.	EB70 Report Annex 3 § 238 VCS Version 3.3	DR	N.A.	OK	OK
3.2.16. If calibration is delayed and if the calibration is implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available) for the certain monitoring period, has the error been applied in following ways?	EB70 Report Annex 3 § 239 VCS Version 3.3	DR	N.A.	OK	OK
3.2.16.1. The adjusted measured values of the delayed calibration result in fewer claimed emission reductions?	EB70 Report Annex 3 § 239 VCS Version 3.3	DR	N.A.	OK	OK
3.2.16.2. For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration?	EB70 Report Annex 3 § 239 VCS Version 3.3	DR	N.A.	OK	OK
3.2.17. If the results of the delayed calibration aren't available, is there any plan to conduct the required calibration?	EB70 Report Annex 3 § 240 VCS Version 3.3	DR	N.A.	OK	OK
3.2.18. If the results of the delayed calibration aren't available, have Pss calculated the emission reductions conservatively?	EB70 Report Annex 3 § 240 VCS Version 3.3	DR	N.A.	OK	OK
3.2.19. If the results of the delayed calibration aren't available, have post registration requirements been followed by the PPs?	EB70 Report Annex 3 § 241 VCS Version 3.3	DR	N.A.	OK	OK

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
3.2.20. Have any information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of emission reductions been given in detail in the MR?	EB70 Report Annex 11 VCS Version 3.3	DR	Yes. By checking the MR/D12/, it is confirmed the following parameters $EF_{CH_4,BF}$, $EF_{km,CO_2,y}$, $EF_{CO_2,FF,i}$, $EF_{burning,CH_4,k,y}$, $EF_{CO_2,LE}$ are sourced from IPCC default values, and they have been given in detail in the section 3.2 of MR. $NCV_{i,y}$ is sourced from China Energy Statistical Yearbook	OK	OK
3.2.21. In the data/parameter tables provided under section 3.2 of the MR, for each data has it been indicated what the data/parameters are used for? (baseline/project /leakage emission calculations)	EB70 Report Annex 2 § 194 VCS Version 3.3	DR	N.A. As per the template of MR/D10/, it is not necessary to provide the data/parameters' purpose under section 3.2.	OK	OK
3.2.22. If the data that are monitored been listed under section 3.2 using the tabular format, does the listed data include all the parameters used to calculate baseline, project and leakage emissions as well as other relevant parameters required by the approved methodology and the monitoring plan?	EB70 Report Annex 11 VCS Version 3.3	DR	No. Please refer to CAR-2 in 3.2.1 CAR-2 is closed and please refer to table 2.	~~CAR-2~~	OK
3.2.23. Is a complete set of data available for the specified monitoring period?	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Pending on CAR-2 in 3.2.1. CAR-2 is closed and it is confirmed that a complete set of data available for specified monitoring period.	~~CAR-2~~	OK
3.3. Description of the Monitoring Plan					
3.3.1. Has a description of the monitoring system been provided under Section 3.3 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR/I	Yes. By checking the MR/D12/, it is confirmed that the description of the monitoring system has been provided in the section 3.3 of MR, which is also verified by interviews during onsite visit.	OK	OK
3.3.2. Has information about the data collection procedures, including following been provided under Section 3.3 of the MR?	EB70 Report Annex 11	DR	Yes. By checking the MR/D12/, it is confirmed the information about data collection procedures has been provided under section 3.3 of the MR.	OK	OK

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
	EB70 Report Annex 2 § 193 VCS Version 3.3				
3.3.2.1. Information flow including data generation	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. Under section 3.3 of MR/D14/, the information flow including data generation is described.	OK	OK
3.3.2.2. Data aggregation	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. Under section 3.3 of MR/D14/, the data aggregation is described.	OK	OK
3.3.2.3. Data recording	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. Under section 3.3 of MR/D14/, data recording is described.	OK	OK
3.3.2.4. Data calculation	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS	DR	Yes. Under section 3.3 of MR/D14/, data calculation is described.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
3.3.2.5. Data reporting	Version 3.3 EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. Under section 3.3 of MR/D14/, data reporting is described.	OK	OK
3.3.3. Has organizational structure, roles and responsibilities of personnel, and emergency procedures for the monitoring system been provided under section 3.3 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the organization structure, roles and responsibilities of personnel, and emergency procedures for the monitoring system has been provided under section 3.3 of MR/D12/, which is also confirmed as consistent with the CDM Monitoring management regulation/D15/.	OK	OK
3.3.4. Regarding to the management and operational system, are the responsibilities and authorities for monitoring and reporting in accordance with the responsibilities and authorities stated in the monitoring plan?	EB70 Report Annex 3 § 234 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the responsibilities and authorities for monitoring and reporting regarding to management and operational system are checked to be in accordance with the responsibilities and authorities stated in the monitoring plan/D07/.	OK	OK
3.3.5. Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	EB70 Report Annex 3 § 234 VCS Version 3.3	DR	Yes. By checking the MR/D12/, the QA/QC are checked to be in accordance with the responsibilities and authorities stated in the monitoring plan/D07/.	OK	OK
3.3.6. Has line diagram(s) showing all relevant monitoring points been provided under section 3.3 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 193 VCS Version 3.3	DR	Yes. By checking the line diagram shown in the MR/D12/, it is confirmed all relevant monitoring points has been provided under section 3.3.	OK	OK
3.3.7. If data and parameters monitored described in section 3.2 of the MR are determined by a	EB70 Report	DR	N.A.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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sampling approach, has the description on how PPs implemented the sampling for those data and parameters according to the sampling plan been provided?	Annex 11 EB69 Report Annex 4		No data and parameters are determined by sampling approach.		
3.3.8. If data and parameters monitored described in section 3.2 of the MR are determined by a sampling approach, has the following been included?	EB70 Report Annex 11 EB69 Report Annex 4	DR	N.A. No data and parameters are determined by sampling approach.	OK	OK
3.3.8.1. Description of implemented sampling design;	EB70 Report Annex 11	DR	N.A. No data and parameters are determined by sampling approach.	OK	OK
3.3.8.2. Collected data (electronic spreadsheets may be attached and referenced);	EB70 Report Annex 11	DR	N.A. No data and parameters are determined by sampling approach.	OK	OK
3.3.8.3. Analysis of the collected data;	EB70 Report Annex 11	DR	N.A. No data and parameters are determined by sampling approach.	OK	OK
3.3.8.4. Demonstration on whether the required confidence/precision has been met.	EB70 Report Annex 11	DR	N.A. No data and parameters are determined by sampling approach.	OK	OK
3.3.9. Have the monitoring plan and the applied methodology been properly implemented and followed by the PPs?	EB70 Report Annex 3 § 229 § 233 VCS Version 3.3	DR/SV	Yes. By checking against the monitoring plan/D07/ and ACM0006 version 06.2/D03/ as well as onsite inspection, it is confirmed that the monitoring plan and the applied methodology have been properly implemented and followed by the PP.	OK	OK
3.3.10. Has the monitoring of parameters (baseline / project / leakage / emission reduction) in the project activity been implemented in accordance with the monitoring plan contained in the registered PD or any accepted revised monitoring plan?	EB70 Report Annex 3 § 234 VCS Version 3.3	DR	Yes. By checking the revised CDM PDD/D07/ and onsite inspection, it is confirmed that the monitoring of parameters in the project activity has been implemented in accordance with the monitoring plan contained in the PDD/D07/.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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3.3.11. Have all parameters stated in the monitoring plan, the applied methodology and relevant VCS requirements been sufficiently monitored and updated as applicable?	EB70 Report Annex 3 § 234 VCS Version 3.3	DR	Yes. By checking the monitoring plan/D07/, ACM0006 version 06.2/D03/, it is confirmed that all necessary parameters has been sufficiently monitored.	OK	OK
3.3.12. Are monitoring results consistently recorded and stored as per the approved frequency?	EB70 Report Annex 3 § 234 VCS Version 3.3	DR	Yes. By checking the monitoring data record/D22//D26//D30/, it is confirmed that they are consistently recorded and stored as per the approved frequency.	OK	OK
4. QUANTIFICATION of GHG EMISSION REDUCTIONS and REMOVALS					
4.1. Baseline Emissions					
4.1.1. Has all the formulae used to calculate the baseline emissions been provided under section 4 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Yes. Under section 4 of the MR/D12/, all the formulae used to calculate the baseline emission has been provided.	OK	OK
4.1.2. Has sample calculations for all formulae used and calculation of baseline emissions or baseline net GHG removals by sinks, applying actual values been provided under section 4 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. The calculations applying actual values have been provided under section 4 of the MR/D12/.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
4.1.3. Has all electronic spread sheets to present full calculations in the monitoring report been attached?	EB70 Report Annex 11 EB70 Report Annex 2 §197 VCS Version 3.3	DR	Yes. The electronic spread sheets/D13/ to present full calculations have been provided for verification.	OK	OK
4.1.4. Have any assumptions used in baseline emission calculations been justified?	EB70 Report Annex 3 §245 VCS Version 3.3	DR	The values of each parameters have been justified as corrected by checking the corresponding documents: $EG_{project\ plant,y}$: -The proof of the initial meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd /D20/ -The proof of the ending meter's reading for the exported and imported electricity issued by Liaoyuan power supply Co.,Ltd /D21/ -Statistic sheets of exported and imported electricity D22/ -Invoices of the exported electricity/D23/ -Transition note of monthly exported electricity /D24/ -Statistic sheets of exported and imported electricity/D41/ $BF_{k,y}$: -Biomass residues purchase statistic sheets/D30/ -Biomass purchase statement sheets/D31/ -Biomass daily consuming sheets /D32/ -Biomass consuming statistic sheets/D33/ Moisture content of the biomass residues -Biomass residues purchase statistic sheets/D30/	OK	OK
4.1.5. If applicable, are the appropriate emission factors used for the baseline emission calculations in line with the good guidance practices? (e.g. IPCC default values and other reference values)	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Yes. The value of $EF_{grid,CM,y}$ are checked as appropriate by checking the PDD/D07/. And $EF_{burning,CH4,k,y} * NCV_k$ are checked as appropriate by checking the default IPCC values shown in ACM0006 version 06.2/D03/.	OK	OK
4.2. Project Emissions					

*DR= Document Review, I= Interview, SV=Site Visit

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
4.2.1. Has all the formulae used to calculate the project emissions been provided under section 4.2 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Yes. Under section 4 of the MR/D12/, all the formulae used to calculate the project emission has been provided.	OK	OK
4.2.2. Has sample calculations for all formulae used and calculation of project emissions or or actual net GHG removals by sinks, applying actual values been provided under section 4.2 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. The calculations applying actual values have been provided under section 4 of the MR/D12/.	OK	OK
4.2.3. Has all electronic spreadsheets to present full calculations in the monitoring report been attached?	EB70 Report Annex 11 EB70 Report Annex 2 §197 VCS Version 3.3	DR	Yes. The electronic spread sheets/D14/ to present full calculations have been provided for verification.	OK	OK
4.2.4. Have any assumptions used in project emission calculations been justified?	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	The values of AVD_y have been justified as correct by checking the documents/D30/D31/. The values of $BF_{T,k,y}$ have been justified as correct by checking the documents/D30/D31/D32/D33/. Moisture content of the biomass residues have been justified as correct by checking the document/D30/ The values of NCV_k have been justified as correct by checking the documents/D29/. The values of TL_y have been justified as correct by checking the	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
			documents/D30/D31/. The value of $FF_{j,i,y}$ have been justified as correct by checking the documents/D26/D27/D28/. The value of $EC_{PJ,y}$ have been justified as correct by checking the documents/D20/D21/D22/D25/.		
4.2.5. If applicable, are the appropriate emission factors used for the project emission calculations in line with the good guidance practices? (e.g. IPCC default values and other reference values)	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Yes. The verification team has been checked the following emission factors and confirms the appropriateness: The value of $NCV_{i,y}$ is accordance with the value shown in the China Energy Statistical Yearbook 2011/D57/; The value of $EF_{CO2,FF,i}$ is accordance with the IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /D60/; The value of $EF_{km,CO2,y}$ is accordance revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, Moderate Control index for US Heavy Duty Diesel Vehicles in Table 1-32, page 1.75/D64/; The value of $EF_{CH4,BF}$ is accordance with IPCC 2006 default value provided in table 4 and table 5 of ACM0006/D03/.	OK	OK
4.3. Leakage					
4.3.1. Has all the formulae used to calculate the leakage emissions been provided under section 4.3 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 EB70 Report Annex 3 § 245 VCS Version 3.3	DR	N.A. By checking the documents/D19/, it is confirmed that the quantity of available biomass residue in the defined region (within 50km to the plant) is 25% larger than the quantity of biomass residues utilized, including the project plant, which proved that there is an abundant surplus of the biomass residue in the region of the project activity which is not utilized. So as per ACM0006 version 06.2, the leakage is zero.	OK	OK
4.3.2. Has sample calculations for all formulae used and calculation of leakage emissions, applying actual values been provided under section E.3 of the MR?	EB70 Report Annex 11 EB70	DR	N.A.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
	Report Annex 2 § 197 VCS Version 3.3				
4.3.3. Has all electronic spread sheets to present full calculations in the monitoring report been attached?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. The electronic spread sheets/D14/ to present full calculations have been provided for verification.	OK	OK
4.3.4. Have any assumptions used in leakage emission calculations been justified?	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	Yes. Two parameters are involves determining whether the leakage shall be considered: Quantity of biomass residues that are utilized in the defined geographical region and Quantity of biomass residues in the region. The values of these two parameters are justified as correct by checking the documents/D19/D33/.	OK	OK
4.3.5. If applicable, are the appropriate emission factors used for the leakage emission calculations in line with the good guidance practices? (e.g. IPCC default values and other reference values)	EB70 Report Annex 3 § 245 VCS Version 3.3	DR	N.A.	OK	OK
4.4. Summary of GHG Emission Reductions and Removals					
4.4.1. Have the total baseline emissions or baseline net GHG removals by sinks during the monitoring period been given under section 4.4 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. Under section 4.4 of the MR/D12/, the total baseline emission during monitoring period has been given, which is consistent with the values shown in the ER calculation spreadsheet/D13/.	OK	OK
4.4.2. Has the total project emissions or actual net GHG removals by sinks during the monitoring period been given under section 4.4 of the	EB70 Report Annex 11	DR	Yes. Under section 4.4 of the MR/D12/, the total project emission during monitoring period has been given, which is consistent with the values shown in the ER calculation spreadsheet/D13/.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
MR?	EB70 Report Annex 2 § 197 VCS Version 3.3				
4.4.3. Has the total leakage emissions during the monitoring period been given under section 4.4 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. Under section 4.4 of the MR/D12/, the total leakage emission during monitoring period has been given as zero, which is consistent with the values shown in the ER calculation spreadsheet/D13/.	OK	OK
4.4.4. Have the total emission reductions or net anthropogenic GHG removals by sinks during the monitoring period been given under section 4.4 of the MR?	EB70 Report Annex 11 EB70 Report Annex 2 § 197 VCS Version 3.3	DR	Yes. Under section 4.4 of the MR/D12/, the total emission reductions during monitoring period has been given, which is consistent with the values shown in the ER calculation spreadsheet/D13/.	OK	OK
4.4.5. Are there any material information detected?	EB69 Report Annex 6 §8 §15 §19	DR	No. There is no material information detected during the verification. There are some CARs and CLs are raised during the gap validation and verification, but no one belongs errors, omissions or misstatements could change a decision by the Board.	OK	OK
4.4.6. If there is material information that can cause overestimation of emission reductions or removals of the project activity, is this equal to higher than one of the following?	EB69 Report Annex 6 §10 §12 §15 §17	DR	N.A.	OK	OK
4.4.6.1. 0.5 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal of equal to or more than 500,000 tons of carbon dioxide equivalent per year?	EB69 Report Annex 6 §10	DR	N.A.	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
4.4.6.2. 1 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal between 300,000 and 500,000 tons of carbon dioxide equivalent per year?	EB69 Report Annex 6 §10	DR	N.A.	OK	OK
4.4.6.3. 2 per cent of the emission reductions or removals for large-scale project activities achieving a total emission reduction or removal of 300,000 tons of carbon dioxide equivalent per year or less?	EB69 Report Annex 6 §10	DR	N.A.	OK	OK
4.4.6.4. 10 per cent of the emission reductions or removals for the microscale project activities?	EB69 Report Annex 6 §10	DR	N.A.	OK	OK
4.4.6.5. 5 per cent of the emission reductions or removals for small-scale project activities other than project activities covered under 4.4.6.4 above?	EB69 Report Annex 6 §10	DR	N.A.	OK	OK
5. ADDITIONAL INFORMATION					
5.1. If any further background information regarding any raw data from monitoring is provided, is this information correct and supported by the appropriate evidence?	VCS Version 3.3	DR	N.A. There is no any further background information provided in the MR/D12/.	OK	OK
5.2. If any further background information regarding additional information used in the monitoring plan is provided, is this information correct and supported by the appropriate evidence?	VCS Version 3.3	DR	N.A. There is no any further background information provided in the MR/D12/.	OK	OK
5.3. If any further background information regarding documentation of activities conducted from the monitoring plan and diagrams are provided, is this information correct and supported by the appropriate evidence?	VCS Version 3.3	DR	N.A. There is no any further background information provided in the MR/D12/.	OK	OK
6. OTHER REQUIREMENTS					
6.1. Forward Action Requests (FARs) Identified During Validation and/or Previous Verification					
6.1.1. Is there any remaining FARs from the	EB70	DR	No. There is no FARs from the validation and there are no previous	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

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Question	Reference	Means of verification*	Findings, comments, references and document sources	Draft opinion	Final opinion
validation and/or previous verification activities?	Report Annex 3 § 27 § 213 § 220 § 223		verification activities.		
6.1.2. If there any remaining FARs from the validation and/or previous verification activities, have the PPs addressed these FARs in the MR?	EB70 Report Annex 3 § 27 § 213 § 220 § 223	DR	N.A.	OK	OK
6.1.3. Has the FARs been resolved?	EB70 Report Annex 3 § 27 § 213 § 220 § 223	DR	N.A	OK	OK

*DR= Document Review, I= Interview, SV=Site Visit

Table 2 – Resolution of Corrective Action, Forward Action and Clarification Requests

Draft Report Clarifications, Forward Action and Corrective Action Requests By Verification Team	Ref. to Checklist Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion
CAR-1 Under section 1.7 of PD version 1.0, it is indicated that the project is a large project. This scale classification is not in compliance with the rules indicated in para. 3.9.1 of VCS.	-	The project scale under section 1.7 of PD has been categorized as “project”.	OK. By checking the revised PD, the validation team confirms that the project scale under section 1.7 of PD has been changed to “project”. Since the estimated annual GHG emission reductions of the project are lower than 300,000tCO₂, as per 3.9.1 of VCS, the scale of the project belongs to “project” scale. CAR-1 is closed.
CAR-2 By checking the MR/D12/ against the PDD/D07/, it is found the parameter TDL_y which is a monitored parameters in the PDD/D07/ is not listed under section 3.2 of the MR.	3.2.1	The parameter TDL_y has been added under section 3.2 of the MR.	OK. By checking the revised MR, the parameter TDL_y has been added under section 3.2 of MR, and the information provided are in line with the ACM0006 version 06.2. CAR-2 is closed.
CAR-3 Under section 3.2, the following issues are found regarding to the values for the parameters: -for the parameter $BF_{k,y}$ and $BF_{T,k,y}$, the value of period 30/11/2007-24/12/2007 shown in the MR is not correct. By checking the Biomass purchase statement sheets/D30/ as well as Biomass consuming statistic sheets/D33/, this value only covers the period of 01/12/2007-24/12/2007, but the values in 30/11/2007 should be also included. -for the parameter $BF_{k,y}$ and $BF_{T,k,y}$, the values of	3.2.6	- According to Biomass purchase statement and Biomass consuming record, after including the value in 30/11/2007, the value of $BF_{k,y}$ and $BF_{T,k,y}$ covering period 30/11/2007 – 24/12/2007 are 10,347.17 tones (wet base) and 11,117.87 tones (wet base). Corresponding correction has been done in both MR and ER calculation spreadsheet. - By checking the Biomass purchase statement sheets and Biomass consuming statistic sheets, the value of period 25/12/2008-24/12/2009 and 25/12/2009-08/03/2010 shown in ER calculation spreadsheet is correct. So, the values in MR have been corrected.	OK. -The verification team has checked the updated ER calculation sheet and MR, and confirms that the data of 30/11/2007 have been accounted into $BF_{k,y}$ and $BF_{T,k,y}$. By checking the provided Biomass purchase statement and Biomass consuming record, it is confirmed that the values are correct. -It is confirmed the values shown in the updated MR has been revised as

* CAR= Corrective Action Request, FAR= Forward Action Request, CL= Clarification Request

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Draft Report Clarifications, Forward Action and Corrective Action Requests By Verification Team	Ref. to Checklist Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion								
period 25/12/2008-24/12/2009 and 25/12/2009-08/03/2010 are not in accordance with those shown in the ER calculation spreadsheet/D14/. -for the Quantity of biomass residues of type k that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region and the Quantity of biomass residues of type k in the region, only the year of 2007 to 2009 are provided. As the monitoring period also covers parts of year 2010, so please provide the corresponding values in 2010.		- There is only one type of biomass residue used in the project, that is maize stalk. In 2010, the total quantity of biomass residues of maize stalk that are utilized is the 67.374 tones in the defined geographical region, of which 20.074 tones by the project for energy generation, and 47.3 tones utilized out of the project, such as feedstock. The total Quantity of biomass residues of maize stalk available in the region is 160 tones.	per ER calculation spreadsheet, and are in line with the Biomass purchase statement sheets and Biomass consuming statistic sheets. -By checking the updated MR and ER calculation spreadsheet, it is confirmed that the data in 2010 has been provided, and the values are consistent with Statement regarding the available and utilized biomass output of Liaoyuan City 2010 issued by Liaoyuan City Agricultural Committee and Biomass consuming statistic sheets of 2010. CAR-3 is closed.								
CAR-4 By checking the weight belts and flow meter during onsite visit and their calibration certificates, it is found that the serial NO. of the weight belt 1 and weight belt 2 and flow meters are not indicated correctly in the section 3.2 and 3.3 of MR.	3.2.8.3	The serial NO. of the weight belt 1 and weight belt 2 and flow meters in the section 3.2 and 3.3 of MR has been corrected as below: <table><tr><td>equipment</td><td>Serial no.</td></tr><tr><td>weight belt 1</td><td>081218</td></tr><tr><td>weight belt 2</td><td>090325</td></tr><tr><td>flow meters</td><td>046</td></tr></table>	equipment	Serial no.	weight belt 1	081218	weight belt 2	090325	flow meters	046	OK. By checking the revised MR, the calibration certificates and nameplates for the weight belts and flow meters, it is confirmed that correct serial NO.s have been indicated. CAR-4 is closed.
equipment	Serial no.										
weight belt 1	081218										
weight belt 2	090325										
flow meters	046										
CL-1 The relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.) has not been provided under Section 1.1 of the MR.	1.1.4	The construction of project was started on June 28th, 2006 and the project was put into operation on November 30th, 2007. The expected life-time of the project is 20 years. The description above has been added under Section 1.1 of the MR.	OK. By checking the revised MR, it is confirmed that the relevant dates for the project activity have been provided under section 1.1 of the MR. And the dates are checked as consistent with the revised CDM PDD								

* CAR= Corrective Action Request, FAR= Forward Action Request, CL= Clarification Request

Draft Report Clarifications, Forward Action and Corrective Action Requests By Verification Team	Ref. to Checklist Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion
			and the Commission quality supervising check report. CL-1 is closed.
CL-2 The total emission reductions achieved in this monitoring period has not been provided under section 1.1 of the MR.	1.1.5	The project activity achieved emission reductions of 331,085 tCO ₂ e during this monitoring period from 30/11/2007 to 08/03/2010.	OK. By checking the revised MR, it is confirmed that the total emission reduction achieved in this monitoring period has been provided, which is consistent with the value shown in the ER spreadsheet. CL-2 is closed.
CL-3 The manufacturer of the boiler shown in the section 2.1 is not consistent with the name on the nameplate (Harbin Boiler Group Co., Ltd.), please clarify.	2.1.10	The manufacturer of the boiler was wrongly written as "Denmark BWE Company", from which is only the technology of boiler was imported. The manufacturer of the boiler shown in the section 2.1 has been corrected as " <i>Harbin Boiler Company Limited</i> " to be in line with the name on the nameplate.	OK. By checking the revised MR, it is confirmed that the manufacturer of the boiler has been revised to be in line with the name on the nameplate. And by interviewing with Project manager, it is confirmed that the technology was imported from "Denmark BWE Company". CL-3 is closed.
CL-4 By checking the MR against the monitoring plan shown in the revised CDM PDD, it is found that the monitoring plan mentions weight meters of type SCS-30 whereas the MR indicates the type of SCS-50t-QC for the weight bridge and HY2105 and 6001B for the weight belts; Please clarify this small deviation.	2.2.1 2.2.2 2.2.3	Two deviations has been added in section 2.2 of MR as following: The first deviation is the type of weighbridge. The type of weighbridge installed by the project during the monitoring is SCS-50t-QC rather than SCS-30 as described in PDD. The weighbridge with a larger measurement range has been installed by the project. As per the nameplate of SCS-50t-QC, its accuracy is Class III and according to the "Digital Indicating Weighing Instrument (JJG 539-1997)", its precision can reach 0-20kg". The accuracy of SCS-30 is 0-20kg, therefore the change of type has	OK. The verification team has checked the nameplate of SCS-50t-QC as well as the calibration certificates of the HY2105 and 6001B, their accuracy is Class III and according to the "Digital Indicating Weighing Instrument (JJG 539-1997)", their precision can reach 0-20kg". The accuracy of SCS-30 is 0-

* CAR= Corrective Action Request, FAR= Forward Action Request, CL= Clarification Request

Draft Report Clarifications, Forward Action and Corrective Action Requests By Verification Team	Ref. to Checklist Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion
		not influenced the precision of the measurement. The second deviation is the type of weight belts. According to the revised PDD registered as CDM, the weight belt planned to use type SCS-30 with accuracy of 0-20kg. But at the actual situation, three weight belts were installed, two of them are type HY2105, the other one is type 6001B. The accuracy of HY2105 and 6001B are Class III, and according to "Digital Indicating Weighing Instrument (JJG 539-1997)" the precision can reach 0-20kg, as per the calibration certificate of the weight belts. The accuracy of SCS-30 is 0-20kg, therefore the change of type has no influence on the precision of the measurement.	20kg, so the verification team confirms the change of types have no influence on the precision of the measurements. CL-4 is closed.
CL-5 By checking the MR/D12/, it is found the measurement methods and procedures for parameters $BF_{k,y}$, $BF_{T,k,y}$ and TL_y are not described clearly under section 3.2 of MR.	3.2.4	- The measurement methods and procedures for parameters $BF_{k,y}$ has been revised as "Use weight meters. Data monitored continuously and aggregated as appropriate (wet base). Adjust for the moisture content in order to determine the quantity of dry biomass." under section 3.2 of MR. - The measurement methods and procedures for parameters $BF_{T,k,y}$ has been revised as "Use weight meters. Data monitored continuously and aggregated as appropriate (wet base). Adjust for the moisture content in order to determine the quantity of dry biomass." under section 3.2 of MR. - The measurement methods and procedures for parameters TL_y has been revised as "When the truck arrives in the power plant, the load of the trucks were measured by the weight bridge and the staff puts down the number in the data collection system" under section 3.2 of MR.	OK. By checking the revised MR, it is confirmed that the measurement methods and procedures for parameters $BF_{k,y}$, $BF_{T,k,y}$ and TL_y are described more clearly, and consistent with the onsite inspection. CL-5 is closed.

Draft Report Clarifications, Forward Action and Corrective Action Requests By Verification Team	Ref. to Checklist Questions in Table-1	Summary of Project Participants' Response	Verification Team Conclusion										
CL-6 The calibration date and the valid period of the weight belt 1 shown in the section 3.2 of the MR/D12/ are not consistent with the date shown in the calibration certificate, please clarify.	3.2.8.4 3.2.8.5	The wrong calibration date and the valid period were carelessly copied from another equipment without carefully check. The calibration date and the valid period of the weight belt 1 shown in the section 3.2 of the MR have been corrected as below: <table><tr><th>Calibration date</th><th>Valid period</th></tr><tr><td>21/12/2008</td><td>21/12/2008-20/05/2009</td></tr><tr><td>15/02/2009.</td><td>15/02/2009-14/08/2009</td></tr><tr><td>13/08/2009</td><td>13/08/2009-12/02/2010</td></tr><tr><td>11/02/2010</td><td>11/02/2010-10/08/2010</td></tr></table>	Calibration date	Valid period	21/12/2008	21/12/2008-20/05/2009	15/02/2009.	15/02/2009-14/08/2009	13/08/2009	13/08/2009-12/02/2010	11/02/2010	11/02/2010-10/08/2010	OK. By checking the calibration certificates of the weight belt 1, it is confirmed that the calibration date and the valid period of the weight belt have been corrected. CL-6 is closed.
Calibration date	Valid period												
21/12/2008	21/12/2008-20/05/2009												
15/02/2009.	15/02/2009-14/08/2009												
13/08/2009	13/08/2009-12/02/2010												
11/02/2010	11/02/2010-10/08/2010												

ANNEX 2: VERIFICATION TEAM AND ITR COMPETENCE

Stefan Jindong LIANG, has M.Sc. degree in Environmental Science and Engineering and Bachelor Engineering degree in Environmental Engineering from Tsinghua University in China. He has more than 4 years of experience in GHG emission reduction projects Validation and Verification, and is a certified Lead Verifier for ISO 14064-2006. Prior to joining the re-consult, Stefan Liang was employed as GHG Lead Auditor at ERM CVS and GHG Auditor at TUV Rheinland, and have lead/participated in more than 80 CDM registered, in sectoral scopes 1(Wind, Hydro and Biomass to energy), 4 (waste energy recovery), 8 and 10 (Coal mine methane to energy) and 13 (municipal solid waste incineration to energy, wastewater treatment methane to energy and Landfill gas to energy). He has been working as a contracted team leader and renewable energy expert in the context of re-consult.

Dan LI, has M.Sc. degree in Biochemistry Engineering and Bachelor Engineering degree in Biotechnology Engineering from Beijing University of Chemical Technology in China. She has more than 5 years of experience in GHG emission reduction projects service field and is a certified training auditor for ISO 9001. Prior to joining the re-consult, Dan Li was employed as CDM project manager at a CDM consulting company and registered 10 projects in sectoral scope 1 and 13. She also worked as trainee validator/verifier at China Classification Society Certification Company and has several registered projects including wind, solar and hydro projects. She has been working as a contracted validator/verifier in the context of re-consult.

Linwei MA holds a B.Sc. and PhD degree in Power Mechanics and Engineering from Tsinghua University in China. He is employed as an assistant Professor, Thermal Engineering Department at the Tsinghua University for more than four years. He conducts academic research in thermal energy field and has almost fifteen years of professional experience in total. He has also published books and papers in the energy field. He has been working as a contracted thermal energy and power plant expert in the context of re-consult.

Johann THALER holds a Bsc. degree in Environmental Economics from Ausburg University and is located in Brazil. He has auditing experience since 2004 and has been working as assessment team leader, auditor and technical reviewer in more than 300 CDM, GS and VCS emission reduction projects across several scopes and technical areas. He is holding the technical expertise of TA 1.1, 1.2, 3.1. and 13.1. He worked as lead auditor in several CDM and PoA projects located in South- and Central America, Africa and Asia. He has been working as a contracted team leader, technical reviewer, TA 1.1 and renewable energy expert in the context of re-consult.

Annex 2-1: Appointment Certificates

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Certificate of Appointment re-consult
part of the Natural Power group

Carbon Department Page: 1/1

This Certificate of Appointment is given to **Mr. Stefan Liang JINDONG** as a confirmation of compliance with internal qualification requirements as follows:

Clean Development Mechanism				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
02-05-2013	02-05-2013	02-05-2013	N/A	02-05-2013

Verified Carbon Standard, Gold Standard, World Commission on Dams, Social Carbon				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
02-05-2013	02-05-2013	02-05-2013	N/A	02-05-2013

Speciality	Regional expertise	Financial expertise	Technical area	
N/A	8,11	N/A	1.1	1.2
			N/A	02-05-2013

Within the scope and in strict accordance to the appointment indicated above, the bearer can:

1. Participate in the assessments conducted by Re-consult Ltd.
2. Take the roles within and outside of the assessment team
3. Bring specific expertise to the assessments

The validity of each appointment is 1 year from the dates indicated above. The Certificate may be updated, suspended or withdrawn at any time, subject to changes in Appointee's qualification, changes in the requirements for appointment or expiry of one of the appointments above.

APPOINTMENT IS GRANTED BY

Mr. Anıl SÖYLER	Certification Manager	2 May 2013	
Name	Position	Date	Signature

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Certificate of Appointment re-consult
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Carbon Department Page: 1/1

This Certificate of Appointment is given to **Mrs. Dan Li** as a confirmation of compliance with internal qualification requirements as follows:

Clean Development Mechanism				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
01-03-2013	01-03-2013	N/A	N/A	01-03-2013

Verified Carbon Standard, Gold Standard, World Commission on Dams, Social Carbon				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
01-03-2013	01-03-2013	N/A	N/A	01-03-2013

Speciality	Regional expertise	Financial expertise	Technical area	
N/A	8, China	01-03-2013	1.1	1.2
			N/A	01-03-2013

Within the scope and in strict accordance to the appointment indicated above, the bearer can:

1. Participate in the assessments conducted by Re-consult Ltd.
2. Take the roles within and outside of the assessment team
3. Bring specific expertise to the assessments

The validity of each appointment is 1 year from the dates indicated above. The Certificate may be updated, suspended or withdrawn at any time, subject to changes in Appointee's qualification, changes in the requirements for appointment or expiry of one of the appointments above.

APPOINTMENT IS GRANTED BY

Mr. Anıl SÖYLER	Certification Manager	1 March 2013	
Name	Position	Date	Signature

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re-consult
Rüger Enerji Danışmanlık İş ve
Diy Tic. Ltd. Şti.
Bağ'ın Plaza
Muharrem Yılmazoğlu Cad. 43/14
TR / 06520 Bağlar-Ankara
Tel: 0090-312-287 51 22
Fax: 0090-312-287 33 73

Certificate of Appointment re-consult
part of the Natural Power group

Carbon Department Page: 1/1

This Certificate of Appointment is given to **Dr. Linwei MA** as a confirmation of compliance with internal qualification requirements as follows:

Clean Development Mechanism				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
N/A	N/A	N/A	N/A	07-09-2012

Verified Carbon Standard, Gold Standard, World Commission on Dams, Social Carbon				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
N/A	N/A	N/A	N/A	07-09-2012

Speciality	Regional expertise	Financial expertise	Technical area	
Thermal energy	World-wide	N/A	1.1	1.2
			07-09-2012	N/A

Within the scope and in strict accordance to the appointment indicated above, the bearer can:

1. Participate in the assessments conducted by Re-consult Ltd.
2. Take the roles within and outside of the assessment team
3. Bring specific expertise to the assessments

The validity of each appointment is 1 year from the dates indicated above. The Certificate may be updated, suspended or withdrawn at any time, subject to changes in Appointee's qualification, changes in the requirements for appointment or expiry of one of the appointments above.

APPOINTMENT IS GRANTED BY

Mr. Denis ISKOV	Certification Manager	07-09-2012	
Name	Position	Date	Signature

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re-consult
Rüger Enerji Danışmanlık İş ve
Diy Tic. Ltd. Şti.
Bağ'ın Plaza
Muharrem Yılmazoğlu Cad. 43/14
TR / 06520 Bağlar-Ankara
Tel: 0090-312-287 51 22
Fax: 0090-312-287 33 73

Certificate of Appointment re-consult
part of the Natural Power group

Carbon Department Page: 1/1

This Certificate of Appointment is given to **Mr. Johann THALER** as a confirmation of compliance with internal qualification requirements as follows:

Clean Development Mechanism				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
05-06-2013	05-06-2013	05-06-2013	05-06-2013	05-06-2013

Verified Carbon Standard, Gold Standard, World Commission on Dams, Social Carbon				
Validator	Verifier	Team leader	Technical reviewer	Technical Expert
05-06-2013	05-06-2013	05-06-2013	05-06-2013	05-06-2013

Speciality	Regional expertise	Financial expertise	Technical area	
N/A	4,7,8 and 17	05-06-2013	1.1	1.2
			N/A	05-06-2013

Within the scope and in strict accordance to the appointment indicated above, the bearer can:

1. Participate in the assessments conducted by Re-consult Ltd.
2. Take the roles within and outside of the assessment team
3. Bring specific expertise to the assessments

The validity of each appointment is 1 year from the dates indicated above. The Certificate may be updated, suspended or withdrawn at any time, subject to changes in Appointee's qualification, changes in the requirements for appointment or expiry of one of the appointments above.

APPOINTMENT IS GRANTED BY

Mr. Anıl SÖYLER	Certification Manager	5 June 2013	
Name	Position	Date	Signature

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