


Validation report form for renewal of crediting period for CDM project activities
(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for renewal of crediting period for CDM project activities" at the end of this form.

VALIDATION REPORT FOR RENEWAL OF CREDITING PERIOD (RCP)

Title of the project activity	Straw generation project in Wei county Hebei province, P.R. China
Reference number of the project activity	1546
Number and duration of the next crediting period	2 nd , 25/06/2015 to 25/06/2022
Version number of the validation report for RCP	01
Completion date of the validation report for RCP	01/08/2016
Version number of PDD to which this report applies	5.3
Project participant(s)	National Bio Energy Co., Ltd. Climate Change Capital Carbon Managed Account Limited
Host Party	P.R.China
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Scope: 1 Energy industries (renewable- / non-renewable sources) ACM0018 Version 03.0, Electricity generation from biomass residues in power-only plants
Estimated annual average GHG emission reductions or net anthropogenic GHG removals in the next crediting period	112,431 tCO ₂ e
Name of DOE	China Building Material Test & Certification Group Co., Ltd.
Name, position and signature of the approver of the validation report for RCP	

SECTION A. Executive summary

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The project activity "Straw generation project in Wei county Hebei province, P.R. China" installed a total capacity of 30MW, including one set of water-cooling librated boiler of 1×130t/h with high temperature and high pressure and one set of turbine and generator, with a installed capacity of 25MW before expansion in May 2009 and 30MW after expansion in May 2009 for biomass power generation using biomass residuals including cotton straw, maize stalk, and wood residues. The project is located in Wei County, Xingtai city, Hebei Province, People's Republic of China. The geographic coordinates of the project site is between north latitude of 37°03'45" and 37°03'53", east longitude of 115°16'42" and 115°16'36". The electricity generated by the project is supplied to the North China Power Grid /4//9/.The Project will achieve emission reductions via avoiding CO₂ emissions from the same amount of electricity generation from North China Power Grid, which is mainly composed of traditional fossil fuel fired power plants. Moreover, the project used biomass residues (cotton straw, maize stalk, and wood residues) for energy purpose in high efficiency, which will reduce CH₄ emissions because the biomass is dumped or left to decay mainly under aerobic conditions in the absence of the Project. Annual electricity supplied to the grid of 184,800 MWh is expected for the second crediting period of the project activity, the same as it in the first crediting period of the project activity, as described in the Accept Revised PDD for post registration changes within the 1st crediting period /3//4//5/¹.

China Building Material Test & Certification Group Co., Ltd. (CTC) was commissioned by National Bio Energy Co., Ltd. to perform a validation of the request to renew the crediting period of CDM project activity ref. 1546 "Straw generation project in Wei county Hebei province, P.R. China" in China.

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0018 Version 03.0, Electricity generation from biomass residues in power-only plants /13/.The validation was performed in accordance with CDM Project Standard version 09.0 /14/ and the Validation and Verification Standard version 09.0 /15/ and included an assessment of:

- (a) An impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period;
- (b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The validation of renewal of crediting period serves as assessment of validity of the baseline of project that has opted for a renewal of the crediting period. The validation is an independent third party assessment of the project's compliance with relevant UNFCCC criteria. In particular, the project's baseline and the monitoring plan (MP) are validated in order to confirm that the project baseline, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Validation is a requirement for all CDM projects seeking renewal of the crediting period and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

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

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using CTC internal procedures. The validation consisted of following three phases:

- i) A desk review of the project design and the baseline and monitoring plan;

¹ The Project has been registered as a CDM project on 25/06/2008, and information in the registered PDD version 3.4 /1/ has been changed, and the revised PDD version 4.0 /4/ has been accepted by the CDM EB on 01/03/2012.

- ii) Follow-up interviews with project stakeholders;
- iii) The resolution of outstanding issues and the issuance of the final validation report and opinion.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CLs and CARs), presented in the report. Taking into account this output, the project proponent revised its project design document.

In summary, it is CTC's opinion that the project activity "Straw generation project in Wei county Hebei province, P.R. China" in China, as described in the updated PDD version 5.3 dated 01/08/2016 meets the relevant UNFCCC requirements for the renewal of the crediting period. Hence CTC requests the renewal of the crediting period of the project activity.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Tan	Ernesto	CTC Beijing	✓		✓	✓
2.	Team Member	IR	Zhang	Nancy	CTC Beijing	✓		✓	✓
3.	Trainee	IR	Allen	Zhu	CTC Beijing	✓		✓	✓

B.2. Technical reviewer and approver of the validation report for RCP

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Dou	Lucas	CTC Beijing
2.	Technical Expert	IR	Wang	Lingxiu	CTC Beijing
3.	Approver	IR	Chen	Lu	CTC Beijing

SECTION C. Means of validation

C.1. Desk review

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The updated PDD version 5.0 dated 22/08/2015 was sent to the secretariat by the project participant for notification of intention to renew the crediting period of the project activity /6/. In addition to the updated PDD submitted to request a renewal of the crediting period of the project activity /7/, CTC reviewed:

- The registered PDD and the corresponding validation report /1//2/
- Verification reports and monitoring reports in the first crediting period /3/
- Accept Revised PDD for post registration changes within the 1st crediting period and the corresponding validation opinion /4//5/
- Power Purchase Agreement /9/
- Instructions for filling out the project design document for CDM project activities, CDM PDD Form, version 08.0 /19/
- Methodology ACM0018 Version 03.0 applied by the project /13/

- Relevant decisions, clarifications and guidance from the CMP and the CDM EB
- Relevant national and sectoral policies

During the desk review, CTC has applied standard auditing techniques to assess the quality of information provided. The following activities were performed:

- A review of the data and information presented to verify their completeness;
- Cross checks between information provided in the updated PDD and information from sources other than other used, paying particular attention to project baseline, emission reduction calculation and monitoring plan.

C.2. On-site inspection

Duration of on-site inspection: N/A				
No.	Activity performed on-site	Site location	Date	Team member
1.	N/A	N/A	N/A	N/A

The project information provided in the updated PDD for the renewal of crediting period has been verified /6//7/. CTC was able to confirm information transferred to the updated PDD is materially the same as that in the Accept Revised PDD for post registration changes within the 1st crediting period /4/. The project design, construction, operation and monitoring practice of the project activity were not changed. The baseline scenario information can also be confirmed as it was defined by the applied methodology ACM0018 Version 03.0 /13/. Based on above mentioned reasons and all relevant documents available, CTC did not deem necessary to conduct a physical site visit as part of validation process of the crediting period renewal for the registered project activity, which is in conformity with the paragraphs 71-76 of CDM Validation and Verification Standard version 09.0 /15/.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Li	Zheng	National Bio Energy Co., Ltd.	20/11/2015	<ul style="list-style-type: none"> - status of the project; - any changes with respect to the PDD; - applicability of the selected methodology; - national and sectoral policies/circumstances and changes; - baseline of the project and updates; - monitoring plan; 	Ernesto Tan Nancy Zhang Allen Zhu

C.4. Clarification requests, corrective action requests and forward action requests raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	0	2	0
Application of baseline and monitoring methodology and standardized baseline	0	0	0
Validity of original baseline or its update	0	0	0
Estimated GHG emission reductions or net anthropogenic GHG removals	1	1	0
Validity of monitoring plan	0	0	0
Crediting period	0	0	0
Project participants	0	0	0
Others (please specify)	0	0	0
Total	1	3	0

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	<p>The updated PDD provided by the project participant has been verified against the instructions for filling out the PDD form /19/ and the Accept Revised PDD for post registration changes within the 1st crediting period /4/.</p> <p>The project activity "Straw generation project in Wei county Hebei province, P.R. China" installed a total capacity of 30MW, including one set of water-cooling librated boiler of 1×130t/h with high temperature and high pressure and one set of turbine and generator, with a installed capacity of 25MW before expansion in May 2009 and 30MW after expansion in May 2009 for biomass power generation using biomass residuals including cotton straw, maize stalk, and wood residues. The project is located in Wei County, Xingtai city, Hebei Province, People's Republic of China. The geographic coordinates of the project site is between north latitude of 37°03'45" and 37°03'53", east longitude of 115°16'42" and 115°16'36". The electricity generated by the project is supplied to the North China Power Grid /4//9/.The project used biomass residues (cotton straw, maize stalk, and wood residues) for electricity generation.</p>
Findings	<p>CAR-1: The required information shall be included in the section B7.4 of the PDD:</p> <ol style="list-style-type: none"> 1. Provide the date of completion of study on application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity in the format of DD/MM/YYYY. 2. Provide contact information of the person(s)/ entity(ies) responsible for the application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity and indicate if the person(s)/ entity(ies) is also a project participant(s). <p>Required information has been supplemented in the section B.7.4 of the PDD. The CAR-1 is closed.</p> <p>CAR-2: The information for each organisation listed in sections A.4 and B.7.4 of the PDD shall be included in the Appendix 1 of the PDD.</p> <p>Required information for each organization listed in sections A.4 and B.7.4 of the PDD has been included in the PDD. The CAR-2 is closed.</p>
Conclusion	<p>The PDD form used by the project activity for its crediting period renewal is version 8.0, which is valid at the time of submission of the request for the renewal of the crediting period.</p> <p>Information transferred to the updated PDD is materially the same as that in the Accept Revised PDD for post registration changes within the 1st crediting period /4/. It is in line with the Project Standard version 09.0.</p>

D.2. Application of baseline and monitoring methodology and standardized baseline

Means of validation	<p>The updated PDD applies the methodology, "Electricity generation from biomass residues in power-only plants" ACM0018 Version 03.0 that was the latest version when the project was submitted for crediting period renewal.</p> <p>CTC noticed that the methodology applied in the accepted revised PDD for the 1st crediting period, ACM0006, was restricted to power and heat projects due to the approval of a new consolidated methodology ACM0018 for power-only projects. CTC considers that this is appropriate by correctly applying the methodology ACM0018 Version 03.0.</p> <p>The applicability of the methodology was re-assessed based on the knowledge of the project from the initial validation for registration, subsequent verifications, and documents provided by the PPs as well as the confirmation from the project participants in the follow-up interviews.</p> <p>The application of the selected methodology is justified as below:</p> <ul style="list-style-type: none"> - The Project will only use biomass residues comprising cotton straw, maize stalk, and wood residues. - The Project will not co-fire fossil fuels. - The implementation of the project shall not result in an increase of the
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	<p>processing capacity of raw input or in other substantial changes in this process.</p> <ul style="list-style-type: none"> - The maximum observed storage time to date of the three types of biomass residues used at the project for power plant are all significantly shorter than one year. - No chemical process is involved in the Project prior to biomass residues combustion. The biomass residues however will be processed physically such as drying and shredding prior to combustion. - No power and heat plant is operating at the project site now or during the second crediting period. - There is no heat generated by on site or off-site heat generation equipment connected to the project and used for purposes other than power generation. Also, there will be no heat generated during the second crediting period and used for purpose other than power generation. - The Project is not a fuel switch project activity. - The baseline scenario for power generation is scenario P5, and for biomass use the baseline scenario is scenario B1, either of which is one of the applicability condition for applying the methodology for the Project.
Findings	N/A
Conclusion	CTC was able to confirm that, for crediting period renewal, the project activity correctly applied the selected baseline and monitoring methodology.

D.3. Validity of original baseline or its update

Means of validation	<p>The following steps stipulated in the methodological tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”, version 03.0.1, were applied by the project activity, which is in line with the Project Standard version 09.0.</p> <p>Step 1.-Assess the validity of the current baseline for the next crediting period</p> <p>As demonstrated in the accepted revised PDD /4/, the baseline scenario for electric power of the project activity is the generation of power in the grid, while the baseline scenarios for the use of each biomass residues categories are dumped (B1) and burnt (B3).</p> <p>The validity of the current baseline is assessed using the following sub-steps:</p> <p>Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/sectoral policies</p> <p>In China, the Renewable Energy Law has been put into effect since 2006, which encourages the development of renewable energy projects². However, although renewable energy projects have been developed rapidly in recently years, grid connected power generation in China is still dominated by fossil-fuel power plants³.</p> <p>A Notice about Prohibiting to Burn Agricultural Straw in an Uncontrolled Manner was issued by Ministry of Agriculture of the People's Republic of China on 14/06/2007⁴, and it is not eligible to burn biomass residues in an uncontrolled manner without any energy purpose. Therefore, the baseline scenario B3 is excluded.</p> <p>Since the above sectoral policy has come into effect after the submission of the project activity for validation, the current baseline scenarios needs to be updated in the second crediting period to exclude the baseline scenario B3.</p>
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² http://www.gov.cn/ziliao/flfg/2005-06/21/content_8275.htm

³ China Electric Power Yearbook 2013

⁴ http://www.gov.cn/zwgg/2007-06/14/content_648934.htm

Step 1.2: Assess the impact of circumstances

There are no new relevant national and/or sectoral policies and/or circumstances in the biomass power generating sector applicable to the Project Activity, in comparison to the time of the submission of the project activity for validation, which could impact the validity of the current baseline for the next crediting period. The scenario has been updated in above step1.1.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The project activity consists of the implementation of biomass residues fired power plant where no electricity was generated prior to its implementation. In the absence of the CDM project activity, the project owner would not have constructed the plant and electricity would have been generated by other power plants connected to the grid, and biomass residues used in the Project would have been dumped or left to decay mainly under aerobic conditions.

Therefore, this sub-step is not applicable since the identified baseline scenario at the validation of the project activity did not correspond to the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

Step 1.4: Assessment of the validity of the data and parameters

The emission factors $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ and the global warming potential GWP_{CH_4} have been updated by the project participants for the second crediting period of the project activity accordingly.

Step 2.-Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

As per the requirement of the sub-step, the update for baseline emissions of the second crediting period is based on ACM0018 Version 03.0 that is the latest approved version of the methodology applicable to the project activity at the time of request for renewal of the crediting period.

Step 2.2: Update the data and parameters

The emission factors for have been updated and determined ex-ante as a combined margin consisting of combination of the operating margin and build margin for the second crediting period by the project participants as per the "Tool to calculate the emission factor for an electricity system", version 05.0.

In the initial PDD sent to the DOE for validation version 5.0, the "2014 Baseline Emission Factors for Regional Power Grids in China" previously published by the DNA of China is adopted to calculate the grid emission factors. However, the DNA of China has updated and published the "2015 Baseline Emission Factors for Regional Power Grids in China" published by the DNA of China /10/. Then in the updated PDD version 5.3, the PP used the updated "2015 Baseline Emission Factors for Regional Power Grids in China" /10/ to calculate the emission factors. CTC was able to confirm that this is appropriate and conservative, since the updated emission factors are lower.

CTC was able to confirm that values applied in the calculation of the updated emission factors were in line with the "2015 Baseline Emission Factors for Regional Power Grids in China" published by the DNA of China /10/.

The updated PDD version 5.3 date 01/08/2016 was submitted for crediting period renewal of the project activity. The data used in the EF calculation has been verified to be in accordance with data in the China Electric Power Yearbook 2012-2014 (published annually), the Compilation of Statistical Data for Power Industry 2011-2013, the Statistical System for Public Institution 2012, the China Energy Statistical Yearbook 2012-2014, and IPCC 2006. Those data sources were the

	<p>most available at that moment.</p> <p>Aggregated generation and fuel consumption data are used due to the fact that more disaggregated data are not available in the North China Power Grid; the total electricity delivered to the North China Power Grid has been used which are obtained from the Compilation of Statistical Data for Power Industry 2012-2014. Country specific data for net calorific value of each type of fossil fuel are obtained from the China Energy Statistical Yearbook from 2014 and the IPCC 2006 default values for the emission factors of each type of fossil fuel are deemed reasonable.</p> <p>Operating Margin: Simple OM was chosen and this is justified since the low cost /must run resources constitute less than 50% of total grid generation.</p> <p>Build Margin: Considering data availability, deviation accepted by EB was used in the PDD i.e.</p> <ol style="list-style-type: none"> 1) Use of capacity additions during the last 1~3 years for estimating the build margin emission factor for grid electricity. 2) Use of weights estimated using installed capacity in place of annual electricity generation. <p>The BM emission factor of the power grid is calculated by multiplying the emission factor of the thermal power with the share of the thermal power in the most recently added no less than 20% of total installed capacity. The emission factor for thermal power is determined based on the most advanced and commercially available technology endorsed by China's DNA.</p> <p>With reference to the "Tool to calculate the emission factor for an electricity system", the Simple OM emission factor ($EF_{grid,OM,y}$) of North China Power Grid is calculated as 1.0416 tCO₂e/MWh. Similarly, the build margin emission factor ($EF_{grid,BM,y}$) of the North China Power Grid is calculated ex-ante as 0.4780 tCO₂e/MWh.</p> <p>Therefore the combined baseline emission factor is determined ex-ante and will remain fixed during the second crediting period, viz.</p> $EF_{grid,CM,y} = 1.0416 \times 0.25 + 0.4780 \times 0.75 = 0.6189 \text{ tCO}_2\text{e/MWh}$ <p>Besides, the global warming potential GWP_{CH_4} is updated to be 25 tCO₂e/tCH₄ for the second commitment period according to the decision 4/CMP.7.</p>
Findings	N/A
Conclusion	The stepwise procedure provided in the methodological tool was correctly applied by the project activity for assessing validity of original baseline and its update. Validity of original baseline and its update was therefore confirmed.

D.4. Estimated GHG emission reductions or net anthropogenic GHG removals

Means of validation	<p>CTC has verified the spreadsheet for the calculation of the emission reductions provided by the PP and was able to confirm the estimated emission reductions are correctly calculated /8/.</p> <p>All assumptions and data used by the project participants are listed in the updated PDD and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data was correctly quoted and interpreted in the updated PDD. All values used in the updated PDD are considered reasonable in the context of the CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the updated PDD.</p>
Findings	<p>CL-1: Emission reductions calculation spreadsheet shall be provided.</p> <p>Emission reductions calculation spreadsheet is provided. This CL is closed.</p> <p>CAR-3: The PDD uses 21 tCO₂e/tCH₄ as the GWP_{CH_4} for the 1st commitment period, which is inappropriate and shall be updated according to any future COP/MOP decisions. PDD shall be revised.</p>

	25 tCO ₂ e/tCH ₄ is used as the GWP _{CH₄} in the PDD for the second crediting period in the 2 nd commitment period, and emission reductions calculation has been revised accordingly. This CAR is closed.
Conclusion	The estimated amount of GHG emission reductions of the project activity is 787,017 tCO ₂ e for the second crediting period (7 years) from 25/06/2015 to 25/06/2022, resulting in estimated average annual emission reductions of 112,431 tCO ₂ e.

D.5. Validity of monitoring plan

Means of validation	<p>The Project uses the approved consolidated monitoring methodology ACM0018 Version 03.0 for grid-connected electricity generation from renewable sources. The monitoring plan contained in the PDD version 5.3 /7/ does not impact the accuracy of the monitoring plan.</p> <p>The project operator plans to appoint a Chinese CDM project director and a monitoring manager. Measuring meters will be used and calibrated according to requirements of B.7.1. of the PDD version 5.3 /7/. In addition, the project owner will train the appointed monitoring manager and monitoring engineers to operate these meters. The monitoring plan will be incorporated into the existing monitoring system, implemented according to special monitoring manual to ensure reliable, transparent and comprehensive monitoring.</p> <p>This is in line with the monitoring plan included in the accepted revised PDD /4/.</p>
Findings	N/A
Conclusion	The monitoring plan contained in the PDD version 5.3 dated 01/08/2016 is in accordance with the monitoring methodology and the monitoring plan contained in the accepted revised PDD. The monitoring plan will give opportunity for real measurements of achieved emission reductions.

D.6. Crediting period

Means of validation	The first crediting period is from 25/06/2008 to 25/06/2015. As per the Project Cycle Procedure version 09.0, the new crediting period will be from 25/06/2015 to 25/06/2022.
Findings	N/A
Conclusion	The PP notified the UNFCCC Secretariat that the selected DOE to request the crediting period renewal in advance. CTC has checked the notification email to the UNFCCC Secretariat and the corresponding PDD. The new crediting period will be from 25/06/2015 to 25/06/2022 starting after the expiration of the first crediting period.

D.7. Project participants

Means of validation	<p>The names of the project participants included in the updated PDD have been checked against the names of the project participants with the information on the UNFCCC website: http://cdm.unfccc.int/Projects/DB/TUEV-SUED1200569734.96/view. It is concluded that the same project participants involved in the project activity:</p> <p>National Bio Energy Co., Ltd. Climate Change Capital Carbon Managed Account Limited</p>
Findings	N/A
Conclusion	As per the VVS, CTC confirmed that the name of the project participants included in the updated PDD is consistent with the name of the project participant on the UNFCCC website.

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	N	N/A	N/A
Corrections	N	N/A	N/A
Inclusion of a monitoring plan to a registered project activity	N	N/A	N/A

Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	N	N/A	N/A
Changes to the project design of a registered project activity	N	N/A	N/A
Types of changes specific to afforestation and reforestation project activities	N	N/A	N/A

The PDD described post-registration changes requested during the first crediting period, which have been approved by UNFCCC CDM-EB on 01/03/2012.

SECTION E. Internal quality control

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The validation report underwent an Internal Technical Review (ITR) before requesting for renewal of crediting period of the registered CDM project activity.

The ITR is an independent process, performed by an internal technical review team (a qualified technical reviewer, with assistance from specialists where necessary), to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as CTC's internal procedures.

The Team Leader provides a copy of the validation report to the technical reviewer, including any necessary validation documentation. The technical reviewer reviews the documentation for conformance with the validation scheme and CTC's internal procedures. This is a comprehensive review of all documentation generated during the validation process.

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

- The validation activities have been performed by the validation team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project activity which includes project design, baseline, monitoring plans and emission reduction calculations, internal quality assurance as well as the closure of CARs and CLs during the validation process, review of sample documents.

The technical reviewer may raise Clarification Requests to the validation team and discuss with the Team Leader.

After the agreement of the responses to the Clarification Requests from the validation team as well as the PP(s), the finalized validation report is accepted for further processing such as reporting approval of report uploading via the UNFCCC interface.

SECTION F. Validation opinion

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China Building Material Test & Certification Group Co., Ltd. (CTC) has performed a validation of the request by National Bio Energy Co., Ltd. to renew the crediting period for the registered CDM project activity "Straw generation project in Wei county Hebei province, P.R. China" in China (UNFCCC registration Ref. No. 1546). The assessment was performed in accordance with the Validation and Verification Standard (Version 09.0) /15/ and the CDM Project Standard (Version 09.0) /14/ and included an assessment of:

- (a) An impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period;
- (b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The review of the project design documentation and the subsequent follow-up interviews have provided CTC with sufficient evidence to determine the validity of the original baseline scenario and the update of the baseline through an assessment. The project correctly applies the baseline and monitoring methodology ACM0018 Version 03.0 "Electricity generation from biomass residues in power-only plants".

The total emission reductions from the project are estimated to be on the average 112,431 tCO₂e per year over the 2nd renewable crediting period. The emission reduction forecast has been checked, and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design, and it is CTC's opinion that the project participants are able to implement the monitoring plan.

In summary, it is CTC's opinion that the CDM project activity ref. 1546 "Straw generation project in Wei county Hebei province, P.R. China" in China meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence CTC requests the renewal of the crediting period of the project.

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designate National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
NDRC	National Development and Reform Commission
OM	Operating Margin
PCP	Project Cycle Procedure
PDD	Project Design Document
PS	Project Standard
tCO ₂ e	Tonnes of CO ₂ equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Mr. Lucas Dou holds a bachelor degree in Polymer and a master degree in Material Science. He gained more than 7 years' experience in Clean Development Mechanism in P. R. China. He obtained the certificate of CDM Lead Verifier, Lead Auditor for ISO 14001 and Certified

Measurement & Verification Professional (CMVP), and has successfully completed the course assessment for ISO 14064:2006.

He has experience in CDM validation and verification for more than 100 projects that applied technologies of renewable energy, waste heat/gas recovery, biomass residues power generation, landfill gas power generation, natural gas power generation, etc. His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in “Manufacturing industries (Cement and lime production)” and “Energy industries (Renewables)”.

Ms. Wang Lingxiu holds a Bachelor Degree in Thermal Power Engineering, a PhD Degree in Material Science and has an overall experience of around 10 years. She has 5 years experience in thermal power industry with main responsibilities of plant equipment operation monitoring, which gave her knowledge and experience in the process and operation parameters of power and heat generation from thermal energy sources and plant retrofitting, energy efficiency, etc.

Also, she have experience in certification Energy Efficiency Evaluation for the enterprises of glass, cement and ceramic industry, CCC certification for several cement enterprises, and involved into some scientific research and standard drafting. Her qualification, industrial experience and experience demonstrate her sufficient sectoral competence in TA 1.1 “Thermal energy generation”.

Mr. Ernesto Tan holds a bachelor degree in Geology and a master degree in Structural Geology. He gained more than 2 years’ technical experience in Petroleum Exploitation and Storage & Transportation sector and more than 7 years experience in Clean Development Mechanism in P.R China. He obtained the certificate of Climate Change Lead Verifier and Auditor for ISO 14001.

He has experience in CDM validation and verification for more than 200 projects that applied technologies of renewable energy, waste heat/gas recovery, energy distribution, energy demand, N₂O abatement, oil and gas industry, coal mine methane recovery and use, SF₆ capture and destruction, etc. His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in “Energy industries (Renewables)”.

Ms. Nancy Zhang holds a bachelor degree in Thermal Power Engineering. She gained more than 3 years’ technical experience in thermal equipment sector and more than 7 years experience in Clean Development Mechanism in P.R China. She obtained the certificate of GHG emission Lead Verifier and Auditor for ISO 14001. She has experience in CDM validation and verification for hundreds of projects that applied technologies of renewable energy, waste heat/gas recovery, and thermal power projects, etc. Her qualification, industrial experience and experience in CDM demonstrate her adequate competence in “Energy industries (Thermal energy generation)” and “Energy industries (Renewables)”.

Mr. Allen Zhu holds a Master degree in Electrical Engineering and a bachelor degree in Thermal Power Engineering. He gained more than 2 years’ technical experience in electrical equipment sector and more than 10 years’ experience in Clean Development Mechanism in P.R China. He has experience in CDM validation and verification for hundreds of projects that applied technologies of renewable energy and thermal power projects, etc.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	National Bio Energy Co., Ltd.	Registered PDD	Version 3.4, dated 03/12/2007	Others
2	TUV SUD	Validation report of the project activity	Version 3, dated 16/06/2008	Others
3	Verification DOE	Monitoring reports and corresponding verification reports for the monitoring periods of the 1st crediting period	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1200569734.96/view	Others
4	National Bio Energy Co., Ltd.	Accept Revised PDD for post registration changes within the 1st crediting period	Version 4.0, dated 13/07/2011	PP
5	SGS	Validation opinion for assessment of changes in the PDD of the Project for the 1st crediting period	Version 0, date 22/10/2011	PP
6	National Bio Energy Co., Ltd.	Updated PDD sent to the secretariat for notification	Version 5.0, dated 22/08/2015	PP
7	National Bio Energy Co., Ltd.	Updated PDD to request a renewal of crediting period of the project	Version 5.3, dated 01/08/2016	PP
8	National Bio Energy Co., Ltd.	Emission Factor Calculation Spreadsheet	Version 3.0, dated 08/06/2016	PP
9	National Bio Energy Co., Ltd.	Power Purchase Agreement and Grid Connection Agreement	Dated 08/05/2015	PP
10	NDRC	2015 Baseline Emission Factors for Regional Power Grids in China	http://cdm.ccchina.gov.cn/Detail.aspx?newsId=61599&TId=19	Others
11	China Power Yearbook Editing Committee	China Electric Power Yearbook 2010, 2011, 2012, 2013 and 2014	N/A	Others
12	China Energy Yearbook Editing Committee	China Energy Statistical Yearbook 2012, 2013 and 2014	N/A	Others
13	CDM-EB	Methodology ACM0018 Version 03.0	Dated 08/11/2013	Others
14	CDM-EB	Clean development mechanism project standard	Version 09.0, dated 20/02/2015	Others
15	CDM-EB	Clean development mechanism validation and verification standard	Version 09.0, dated 20/02/2015	Others
16	CDM-EB	Clean development mechanism project cycle procedure version	Version 09.0, dated 20/02/2015	Others
17	CDM-EB	Tool to calculate the emission factor for an electricity system	Version 05.0, dated 27/11/2015	Others
18	CDM-EB	Assessment of the validity of the current/original baseline and update of the baseline at the renewal of the crediting period	Version 03.0.1, dated 02/03/2012	Others
19	CDM-EB	Project design document for CDM project activities	version 08.0, dated 22/07/2016	Others

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	CL-1	Section no.	D.4	Date: 21/11/2015
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Description of CL	
Emission reductions calculation spreadsheet shall be provided.	
Project participant response	Date: 28/12/2015
Emission reductions calculation spreadsheet is provided.	
Documentation provided by project participant	
Emission reductions calculation spreadsheet version 3.0.	
DOE assessment	Date: 10/01/2016
The validation team has checked the emission reductions calculation spreadsheet. This CL is closed.	

Table 2. CAR from this validation

CAR ID	CAR-1	Section no.	D.1	Date: 21/11/2015
Description of CAR				
The required information shall be included in the section B7.4 of the PDD:				
1. Provide the date of completion of study on application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity in the format of DD/MM/YYYY.				
2. Provide contact information of the person(s)/ entity(ies) responsible for the application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity and indicate if the person(s)/ entity(ies) is also a project participant(s).				
Project participant response				Date: 28/12/2015
Required information of section B.7.4 of the PDD has been included in the PDD.				
Documentation provided by project participant				
PDD version 5.3.				
DOE assessment				Date: 10/01/2016
The validation team has checked the revised PDD and can confirm that the required information of section B.7.4 of the PDD has been included in the PDD. This CAR is closed.				

CAR ID	CAR-2	Section no.	D.1	Date: 21/11/2015
Description of CAR				
The information for each organisation listed in sections A.4 and B.7.4 of the PDD shall be included in the Appendix 1 of the PDD.				
Project participant response				Date: 28/12/2015
Required information for each organization listed in sections A.4 and B.7.4 of the PDD has been included in the PDD.				
Documentation provided by project participant				
PDD version 5.3.				
DOE assessment				Date: 10/01/2016
The validation team has checked the revised PDD and can confirm that the required information for each organization listed in sections A.4 and B.7.4 of the PDD has been included in the PDD. This CAR is closed.				

CAR ID	CAR-3	Section no.	D.4	Date: 21/11/2015
Description of CAR				
The PDD uses 21 tCO ₂ e/tCH ₄ as the GWP _{CH₄} for the 1 st commitment period, which is inappropriate and shall be updated according to any future COP/MOP decisions. PDD shall be revised.				
Project participant response				Date: 28/12/2015
25 tCO ₂ e/tCH ₄ is used as the GWP _{CH₄} in the PDD for the second crediting period in the 2 nd commitment period, and emission reductions calculation has been revised accordingly.				
Documentation provided by project participant				
PDD version 5.3 and ER calculation spreadsheet version 3.0				
DOE assessment				Date: 10/01/2016
The validation team can confirm that it is appropriate to update the value of GWP _{CH₄} and the calculation is reliable. This CAR is closed.				

Table 3. FAR from this validation

FAR ID	N/A	Section no.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				

N/A	
DOE assessment	Date: N/A
N/A	