





**Validation report form for renewal of crediting period for
CDM project activities
(Version 03.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Hubei Lichuan Qiyueshan Wind Power Project (Ref. No: 5204)
Number and duration of the next crediting period	2 nd Crediting period (23/09/2018 – 22/09/2025)
Version number of the validation report	01
Completion date of the validation report	16/08/2019
Version number of PDD to which this report applies	03.1
Project participants	Project owner: Hubei Energy Group Qiyueshan Wind Power Co., Ltd.
Host Party	P. R. China
Applied methodologies and standardized baselines	ACM0002 Grid-connected electricity generation from renewable sources, Version 19.0 dated 31/08/2018
Mandatory sectoral scopes	1: Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	Not applicable
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	65,557 tCO ₂ e
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification) (E-0032) 
Name, position and signature of the approver of the validation report	Mr. Juan Sendín Caballero (Applus+ Certification BU Managing Director) 

SECTION A. Executive summary

>>

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been commissioned by Hubei Energy Group Qiyueshan Wind Power Co., Ltd. to perform a validation of the renewal of crediting period of "Hubei Lichuan Qiyueshan Wind Power Project" (Ref. No. 5204) (hereinafter referred to as the project activity) in P. R. China.

The scope of the validation of the renewal of crediting period is defined as an independent and objective review of the updated sections of the PDD relating to the baseline, estimated emission reductions and the monitoring plan using the most recent version of baseline and monitoring methodology applicable for the project activity. The validation opinion is finalized based on the assessment of the project design document through applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formula and calculations.

The assessment was performed in accordance with the CDM VVS for project activities version 02.0 and the CDM PS for project activities version 02.0 including an assessment of:

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

The purpose of "Hubei Lichuan Qiyueshan Wind Power Project" (hereafter referred to as the Project) developed by Hubei Energy Group Qiyueshan Wind Power Co., Ltd. is to generate renewable electricity by utilizing windpower resource. The Project involves the installation of 58 wind turbines with unit capacity of 850kW. The total installed capacity is 49.3MW and total of 86,969 MWh clean electricity generated by the Project are expected to be delivered to the Central China Power Grid (CCPG) annually. The proposed project is located in the Qiyueshan Mountain, Lichuan City, Hubei Province, P. R. China. The project is located at the region of ABCD, where:

Position	Latitude	Longitude
D	30.5147	108.8611
C	30.5278	108.8517
B	30.4231	108.7428
A	30.4156	108.7553

The project activity will achieve greenhouse gases (GHGs) emission reductions by avoiding CO₂ emissions from the business-as-usual scenario electricity generation of those fossil fuel-fired power plants connected to the CCPG. The project activity contributes to sustainable development of the local community, the host country and the world.

According to CDM PS for project activities version 02.0, notification of renewal intention from project participants is no longer required, as long as the DOE submit a renewal request to the secretariat no earlier than 270 days prior to, but no later than one year after, the expiry of the crediting period, the project is valid for renewal and no penalty of "unclaimable period" would be required. And the grace period the submission of renewal request for the existing registered project activities whose crediting period has expired but has not been renewed is set to be 31/12/2019. Therefore, although the project participants failed to send the notification of renewal intention to EB, but the project is eligible for renewal of crediting period.

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 report and the annexed validation checklist describe a total of 2 finding which include:

- 2 Corrective Action Requests (CARs);
- 0 Clarification Requests (CLs);
- 0 Forward Action Requests (FARs).

The PP has responded these findings by modifying the project design, rectifying the PDD and providing adequate additional explanations and evidences. Applus+ Certification confirms that all the findings have been “closed out” before submitting the request for renewal of crediting period.

In summary, it is Applus+ Certification’s opinion that the project activity “Hubei Lichuan Qiyueshan Wind Power Project” (Ref. No. 5204) in P. R. China, as described in the PDD, version 03.1 dated 14/08/2019, meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence Applus+ Certification submitted the request for 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/document review	On-site inspection	Interview(s)	Validation findings
1.	Lead Auditor/ Technical Expert	EI	Xue	Denny	Applus+ Certification	x	x	x	x

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	EI	Shen	Simon	Applus+ Certification
2	Approver	IR	Caballero	Juan Sendín	Applus+ Certification

SECTION C. Means of validation

C.1. Desk/document review

>>

The updated Project Design Document submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and

information from other sources has been done. A complete list of all documents and evidence material reviewed is included in Appendix 3 to this report.

C.2. On-site inspection

The expected average annual Emission Reductions of the project activity in the both 1st and 2nd crediting period are less than 100,000 tCO₂, according to CDM VVS for project activities version 02.0, paragraph 31, it is optional for the DOE to conduct an on-site inspection at validation if its estimated annual average of greenhouse gas (GHG) emission reductions or net anthropogenic GHG removals is less than 100,000 tCO₂. However, a site visit was opted to conduct as below in this case:

Duration of on-site inspection: 13/08/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	<ul style="list-style-type: none"> - Confirm basic information, technology of the project, etc.; - Confirm monitor Data: meter readings, control and maintenance, QA&QC systems - Confirm status of the project activity and any modifications with respect to the registered PDD. - Review applicability to the latest methodology. - Review national and local policies and changes - Check baseline of the project and its updates - Check the lifetime of the project activity - Check emission Factors and their updates - Check monitoring plan and changes. 	Qiyueshan Mountain, Lichuan City, Hubei Province, P. R. China	13/08/2019	Denny Xue

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	He	Jun	Hubei Energy Group Qiyueshan Wind Power Co., Ltd.	13/08/2019	<ul style="list-style-type: none"> - Basic information, technology of the project, etc.; - Monitor Data: meter readings, control and maintenance, QA&QC systems - Status of the project activity and any modifications with respect to the registered PDD. - Applicability to the latest methodology. - National and local policies and changes - Baseline of the project and its updates - The lifetime of the project activity - Emission Factors and their updates 	Denny Xue
2	Hu	Yong	Hubei Energy Group Qiyueshan Wind Power Co., Ltd.	13/08/2019		Denny Xue
3	Chen	Kan	Hubei Energy Group Qiyueshan Wind Power Co., Ltd.	13/08/2019		Denny Xue
4	Liu	Yu	Hubei Energy Group Qiyueshan Wind Power Co., Ltd.	13/08/2019		Denny Xue
5	Gao	Yizhan	Beijing Karbon New Energy Technology Co., Ltd	13/08/2019		Denny Xue
6	Ning	Lizhe	Beijing Karbon New Energy Technology	13/08/2019		Denny Xue

		Co., Ltd		- Monitoring plan and changes.	
--	--	----------	--	--------------------------------	--

C.4. Sampling approach

>>

Not applicable.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

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

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The assessment team has verified the format against the “PDD form” template to confirm whether the correct format of PDD form is used. The assessment team also confirmed the information transferred to the updated PDD against the original registered PDD to confirm whether the information transferred is materially the same.
Findings	The latest version of Project Design Document form version 11.0 available at the time was applied as per CDM PS for project activities version 02.0. The assessment team confirmed the PDD template format has been correctly applied.
Conclusion	In accordance with paragraph 403 of the CDM VVS for project activities version 02.0, the assessment team confirmed that the updated PDD complies with the applicable PDD form with version 11.0 and instructions therein for filling out the PDD. Information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD.

D.2. Application and selection of methodologies and standardized baselines

Means of validation	The assessment team has checked the correctness of the application of the approved methodology to determine the continued validity of the baseline or its update, and to estimate the emission reductions for the applicable crediting period of the registered CDM project activity.
Findings	<p>The project was originally registered based on methodology ACM0002 version 12.1.0. The updated PDD version 03.1 submitted to EB applies methodology ACM0002 Version 19.0. The assessment team confirmed this is appropriate because the methodology ACM0002 Version 19.0 is of its latest approved version at the time of submission of the final validation report to EB for the renewal of the crediting period.</p> <p>The updated PDD did not apply standardized baseline.</p> <p>The project activity correctly applied the approved methodology ACM0002 “Grid-connected electricity generation from renewable sources”, Version 19.0. The methodology ACM0002 Version 19.0 was valid from 31/08/2018 and is still valid at the time of submission of the final PDD for the renewal of the crediting period. The project applied “Assessment of the validity of the original/current baseline and to update the baseline at the renewal of a crediting period” version 03.0.1 and “Tool to</p>

	<p>calculate the emission factor for an electricity system Version 07.0.0" which is the latest version available.</p> <p>The assessment team has validated the documentation referred to in the PDD and verified the documentation content for verifying the justification of the applicability of the methodology and confirmed that the documentation referred to in the PDD is correctly quoted and interpreted. The assessment team has also crosschecked the information provided in the PDD with the documentation other than from the PDD based on the local and sectoral knowledge of the assessment team. Following documentation has been reviewed by the assessment team:</p> <ul style="list-style-type: none"> - Nameplates of the wind turbines; - Power purchasing agreement.
Conclusion	<p>In accordance with paragraph 404(b) of the CDM VVS for project activities version 02.0, the assessment team confirmed that the application of the baseline methodology is transparent and conservative, and confirms that the chosen baseline and monitoring methodology i.e. ACM0002 Version 19.0 is applicable to the project activity.</p>

D.3. Validity of original baseline or its update

Means of validation	<p>The assessment team has validated the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period of the registered CDM project activity at the time of requesting renewal of crediting period of the project activity, via applying the steps from 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.</p>
Findings	<p>The baseline scenario of the project activity is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. According to the methodology ACM0002 Version 19.0, the baseline emissions are the electricity produced by the project activity multiplied by the emission factor of CCPG.</p> <p>For the second crediting period, the continued validity of the original baseline has been assessed in the updated PDD. Applus+ Certification confirms that there have been no changes in the relevant national and/or sectoral regulations on building a wind power project for exporting electricity to power grid since the previous crediting period. On the other hand, the baseline scenario for building a wind power project for exporting electricity to power grid was still valid according to methodology ACM0002 Version 19.0.</p> <p>The information presented in the updated PDD has been validated by an initial document review of all data. Further confirmation has been made based on the review of information from similar projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources, such as the following:</p> <ul style="list-style-type: none"> - China Energy Statistical Yearbook 2013; - China Energy Statistical Yearbook 2014; - China Energy Statistical Yearbook 2015; - China Energy Statistical Yearbook 2016; - China Energy Statistical Yearbook 2017; - China Energy Statistical Yearbook 2018. <p>The steps from 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 as per CDM VVS for project activities version 02.0 were applied to assess the continued validity of the baseline and/or to update the baseline at the renewal of a crediting period:</p> <p>Step 1: Assess the validity of the current baseline for the next crediting</p>

period

The CDM VVS for project activities version 02.0 requires assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

In China, the Renewable Energy Law has been put into effect since 2006, which encourages the development of renewable energy projects. 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 plants. There are no new relevant national and/or sectoral policies and/or circumstances in the electricity generation sector applicable to the project activity, in comparison to the time of the submission of the project activity for validation, which would affect the compliance of the current baseline scenario. Hence in the absence of the project activity electricity would still have been generated in the existing fossil fuel power plants or by the addition of new fossil fuel power plants connected to the CCPG.

Applus+ Certification confirms that no relevant mandatory national and/or sectoral policies applicable to the project activity came into effect after the submission of the project activity for validation.

Step 1.2: Assess the impact of circumstances

For the project activity, the baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment. The main investment environment or market characteristics especially the feed-in tariff, the policy in terms of market access permit have no significant change. The current practice for the baseline emissions is still the GHG emitted by CCPG: the equivalent electricity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources within the CCPG.

By verifying China Energy Statistical Yearbook 2013, China Energy Statistical Yearbook 2014, China Energy Statistical Yearbook 2015, China Energy Statistical Yearbook 2016, China Energy Statistical Yearbook 2017, China Energy Statistical Yearbook 2018, it is confirmed that thermal power (which coal is the fuel) still domain the power supply in CCPG which is the same situation when project activity was under validation. Therefore, the main market characteristics have no change.

As the project is under normal operation which is in line with the original design thereby the condition used to determine baseline emissions in the previous crediting is still valid.

The conditions used to determine the baseline emissions in the previous crediting period are not valid: the emission factor calculation of CCPG in the first crediting period is basing on the data of 2006-2008. Before the time of requesting renewal of the crediting period, the China DNA have issued the latest "2017 Baseline Emission Factors for Regional Power Grids in China" on 20/12/2018, so the emission factor of CCPG and all values need to be updated for the second crediting period.

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

The current baseline scenario is the continuation of the current practice. In the absence of the project, the electricity would have been supplied by CCPG, and it will not request an investment by the project proponent or third party. So, this step is not applicable.

	<p><u>Step 1.4: Assessment of the validity of the data and parameters</u></p> <p>The CCPG emission factor calculated ex-ante for the 1st crediting period needs to be updated, as per the “Tool to calculate the emission factor for an electricity system” version 07.0.0.</p> <p>This parameter is properly described in the following section D.4.</p> <p><u>Conclusion on step 1:</u></p> <p>Applus+ Certification confirms that the current baseline is still valid as per methodology ACM0002 Version 19.0. However, the grid emission factor needs to be updated for the subsequent crediting period.</p> <p><u>Step 2: Update the current baseline and the data and parameters</u></p> <p><u>Step 2.1: Update the current baseline</u></p> <p>As the baseline scenario of the project activity is still sustained in this crediting period, no update would be required.</p> <p><u>Step 2.2: Update the data and parameters</u></p> <p>The CCPG emission factor will be updated as described in chapter D.4 of this report.</p> <p>The parameters described under step 1.4 were properly updated considering the latest versions of methodology ACM0002 and IPCC 2006 Guidelines etc.</p>
Conclusion	<p>In accordance with paragraph 404 of the CDM VVS for project activities version 02.0, the assessment team confirmed that there has been no change in the relevant national and/or sectoral regulations on building a wind power project for exporting electricity to power grid since the previous crediting period. On the other hand, the baseline scenario for building a wind power project for exporting electricity to power grid was still valid according to methodology ACM0002 Version 19.0.</p>

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>The assessment team has verified the estimated GHG emission reductions in the updated PDD according to the applicable requirements in the Project Standard, and methodology ACM0002 Version 19.0 as well as applicable methodological tools.</p>
Findings	<p>The calculation of the emissions reductions exactly follows the procedures described in the methodology ACM0002 Version 19.0 and relevant tool, e.g. the “Tool to calculate the emission factor for an electricity system” version 07.0.0.</p> <p>Applus+ Certification has assessed the calculation of project emissions, baseline emissions, leakage emissions and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheet. The consistency of the parameters and equations presented in PDD, as well as calculation spreadsheet etc., has been compared with the information and requirements presented in the methodology and respective tools.</p> <p>The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked. Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PDD. The values presented in the PDD are considered reasonably based on the documentation and references reviewed and the results of the interviews.</p> <p>The estimation of the emission reductions are considered correct as the calculations have been reproduced by the assessment team with the attainment of the same results.</p> <p>Detailed information on the verification of the parameters used in the equations is</p>

found below. The algorithms for the determination of the baseline and project are discussed in the following sections.

The emission reductions are calculated by the difference between baseline emissions (BE_y), project emissions (PE_y) and leakage.

(1) Baseline emissions

As per the methodology ACM0002 Version 19.0 that the baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated by the *Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh) ($EG_{PJ,y}$)* multiplied by the *Combined margin CO₂ emission factor for grid connected power generation in year y ($EF_{grid,y}$)*.

Because the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, the $EG_{PJ,y}$ equals to the *Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh) ($EG_{facility,y}$)*.

The *Combined margin CO₂ emission factor for grid connected power generation in year y ($EF_{grid,y}$)* is calculated in a transparent and conservative manner as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the steps prescribed in the “*Tool to calculate the emission factor for an electricity system*”, version 07.0.0.

The PDD version 03.1 completed on 14/08/2019 using the data for calculation of the grid emission factor at the time the PDD was received for validation. The latest data available was from China Electric Power Yearbook 2014-2016, China Energy Statistical Yearbook 2014-2016. The calculation is in accordance with the calculation process of the combined margin emission factor published by the Chinese DNA: *2017 Baseline Emission Factors for Regional Power Grids in China* published by the DNA of China on 20/12/2018.

The CCPG is selected as the electricity system of the project activity. Simple OM method (method a) is applied for calculating OM emission factor because according to the data from China Electric Power Yearbook 2012-2016, the low-cost/must-run resources in the latest five years (2011-2015) constitute less than 50% of the total grid generation. *Ex-ante* option with a 3-year generation-weighted average is chosen to account for $EF_{grid,OMsimple,y}$. Option B of simple OM is selected for the calculation based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (option A was denied because necessary data for Option A is not available). As a result, $EF_{grid,OMsimple,y}$ is calculated to be 0.9014 tCO₂e/MWh as a generation weighted average for the year 2013-2015.

Because plant specific fuel consumption and electricity generation data are not publicly available in China, the Guidance caused by DNV's request for deviation of Chinese project activities for the baseline methodology AM0005 has been applied for calculating the build margin (BM) emission factor of this project activity:

- Based on the most recent years energy balance of the CCPG, calculating the proportions of CO₂ emissions from the coal-fired, oil-fired and gas-fired power plants in total CO₂ emissions of thermal power plants and taking them as weight of each type of plant in the calculations;
- Based on the most advanced commercialized technologies which applied by the coal-fired, oil-fired and gas-fired power plants, calculating the emission factor of thermal power plants in CCPG. This approach is more conservative as it assumes all recently built plants have the fuel efficiency as that of the most advanced commercialized technologies;
- Calculating the $EF_{grid,BM,y}$ through multiplying the emission factor of thermal

power plants by the percentage share of thermal power plants installed capacity addition within all recently built installed capacity. The proper year is selected so that it is the closest time when the last 20% of installed capacity was built.

-
As a result, the $EF_{grid,BM,y}$ is calculated to be 0.3112 tCO₂e/MWh.

Based on the weight w_{OM} and w_{BM} of 0.75:0.25 by default for the second crediting period, the combined margin emission factor is calculated to be 0.7538 tCO₂e/MWh.

The annual net electricity supplied to the grid is 86,969 MWh which is in line with the original design of the project. It's confirmed that the estimation of the figure is reasonable. Thereby, the baseline emissions could be calculated to be 86,969 MWh * 0.7538 tCO₂e/MWh = 65,557 tCO₂e. The assessment team confirmed that the remission reductions calculation is corrected in the PDD.

The values of the main parameters for calculating combined emission factor ($EF_{grid,CM,y}$ the same as $EF_{grid,y}$) are crosschecked by the assessment team and the data sources are listed in below table:

Data and Parameters	Description	Data source
$EF_{grid,OM,y}$	CO ₂ emission factor of operation margin of CCPG in 2017	2017 Baseline Emission Factors for Regional Power Grids in China
$EF_{grid,BM,y}$	CO ₂ emission factor of Built margin of CCPG in 2017.	2017 Baseline Emission Factors for Regional Power Grids in China

Applus+ Certification confirms that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions.

(2) Project emissions

The project is a wind power project. Therefore, the project emission is considered as zero based on ACM0002, Version 19.0. Therefore, $PE_y = 0$ tCO₂e.

(3) Leakage

According to the methodology, the project activity leakage does not take into account, then no leakage according to ACM0002, leakage is zero.

(4) Emission reductions

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average *ex-ante* estimation of emission reduction conservatively calculated to be 65,557 tCO₂e per year for the selected 7 years crediting period. Total emission reductions during the second crediting period are estimated to be 458,899 tCO₂e.

Conclusion

In accordance with paragraph 404(b) of the CDM VVS for project activities version 02.0, the assessment team is able to confirm the following:

- All assumptions and data used by the project participants are listed in the 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 is correctly quoted and interpreted in the PDD;
- All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, and leakage emissions;
- All estimates of the baseline, project and leakage emissions can be replicated

using the data and parameter values provided in the PDD.

D.5. Validity of monitoring plan

Means of validation	The assessment team has verified the monitoring plan in the updated PDD according to the applicable requirements in the Project Standard, and methodology ACM0002 Version 19.0 as well as applicable methodological tools.		
Findings	The project applies methodology ACM0002 Version 19.0. The original monitoring plan was updated based on ACM0002 Version 19.0 requirements.		
	Parameters	Description	Measurement method and QA/QC procedures
	EG _{facility,y}	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	<p>The parameter would be calculated by electricity supplied to the Grid and imported from the Grid. Both electricity supplied to the Grid and imported from the Grid are measured by bi-directional meter M1 and M2. M1 is duty meter and M2 is check meter.</p> <p>The meter readings will be continuous measurement and monthly recorded. The measurement/ monitoring equipments should adopt the colligated automation system according with national standard and technology. The qualified entity will check out these electricity meters every year. Other sources such as the ETNs (or on grid statements if applicable) will be available to double check this parameter.</p>
	<p>The electricity meters with accuracy of 0.2S installed at the 110kV substation are used to measure both electricity supplied to the Grid and imported from the Grid. The calibration of meters would be conducted by qualified third party based on the requirement of local and national standard.</p> <p>Applus+ Certification confirms that the monitoring plan contains all necessary parameters which have been clearly described in PDD and that the means of monitoring described in the plan complies with the requirements of the methodology.</p> <p>An organizational structure is provided in PDD. The functions such as data collection, aggregation, verification, calculation, archiving, as well as the maintenance of equipment etc. have been defined. Quality assurance and quality control procedures for recording, maintaining and data archiving etc. will be ensured according to CDM EB rules. The calibration of the meter will be implemented as per national standard. An emergency treatment process has been defined in PDD when the meter is in malfunction. Data management and quality control system are quoted in PDD. The monitoring staffs will be trained based on the training program described in PDD.</p>		
Conclusion	In accordance with paragraph 404(b) of the CDM VVS for project activities version 02.0, the assessment team is able to confirm that the procedures described in PDD have been recognized through document review and interviews with the relevant personnel. The information together with a physical inspection allows the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The major parameters to be monitored have been discussed with the PP, especially regarding the location of the meters, the data management and		

	in general the quality assurance and quality control procedures to be implemented in the context of the project. It's Applus+ Certification's opinion that the project participants are able to implement the monitoring plan and the emission reductions achieved can be reported ex-post for verification.
--	--

D.6. Crediting period

Means of validation	The assessment team verified the renewed crediting period according to the requirements in the CDM PS for project activities version 02.0.
Findings	This is the second crediting period. As per CDM PCP for project activities version 02.0, the next crediting period of the registered CDM project activity commences on the day immediately after the expiration of the current crediting period. Thereby the crediting period starts from 23/09/2018 to 22/09/2025.
Conclusion	In accordance with paragraph 412 of the CDM VVS for project activities version 02.0, the assessment team confirmed that correct crediting period has been applied in the updated PDD.

D.7. Project participants

Means of validation	The assessment team checked the names of the project participants included in the updated PDD with the registered PDD. The assessment team has also confirmed the change of PP via verifying the MoC made public available at UNFCCC website.
Findings	As indicated in the updated PDD sent by PP to EB for request for renewal of crediting period, the project owner, Hubei Energy Group Qiyueshan Wind Power Co., Ltd. indicated in the registered PDD, are the PP of the project activity, which is indicated at UNFCCC website.
Conclusion	In accordance with paragraph 406 of the CDM VVS for project activities version 02.0, the assessment team confirmed that the information of the PP has been correctly indicated in the updated PDD.

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, applied methodologies, standardized baselines or other methodological regulatory documents ¹	N	N.A.	N.A.
Corrections	N	N.A.	N.A.
Change to the start date of the crediting period	N	N.A.	N.A.
Inclusion of a monitoring plan	N	N.A.	N.A.
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	N.A.	N.A.
Changes to the project design	N	N.A.	N.A.
Changes specific to afforestation and reforestation project activities	N	N.A.	N.A.

SECTION E. Internal quality control

>>

As final step of a validation of the final documentation including the validation opinion and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

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

SECTION F. Validation opinion

>>

Applus+ Certification has performed a validation of renewal of crediting period of the “Hubei Lichuan Qiyueshan Wind Power Project” (Ref. No. 5204). The validation was performed on the basis of the updated sections of the PDD relating to the baseline, estimated emission reductions and the monitoring plan using the most recent version of baseline and monitoring methodology applicable for the project activity. The final validation opinion was finalized in accordance with the CDM VVS for project activities version 02.0 and the CDM PS for project activities version 02.0 including the assessment of:

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

The review of the project design documentation and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence to determine the validity of the original baseline. The project correctly applies the latest baseline and monitoring methodology ACM0002, “Grid-connected electricity generation from renewable sources” Version 19.0. Applus+ Certification is able to confirm:

- i) The updated PDD complies with the valid version of the applicable PDD form and instructions therein for filling out the PDD;
- ii) Information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD;
- iii) The baseline and monitoring methodology was applied in accordance with the applicable requirements in the Project Standard;
- iv) The baseline, the estimated GHG emission reductions, and the monitoring plan in the updated PDD comply with the applicable requirements in the Project Standard, and the valid version of the methodology that is applicable to the registered CDM project activity;
- v) The next crediting period of the registered CDM project activity commences on the day immediately after the expiration of the current crediting period;
- vi) The names of project participants in the updated PDD are consistent with the names of the project participants in the registered PDD and the latest MoC made public available at UNFCCC website.

Applus+ Certification also confirms that there have been no proposed post-registration changes for the second crediting period when submitting this report and the corresponding request for renewal of crediting period of the registered CDM project activity to EB.

Given that the project is implemented as designed and the underlying assumptions do not change, the project is likely to achieve the estimated amount of annual emission reductions of 65,557 tCO₂e and a total estimated emission reductions of 458,899 tCO₂e over the 2nd renewable crediting period as specified within the final PDD.

In summary, it is Applus+ Certification’s opinion that the project activity “Hubei Lichuan Qiyueshan Wind Power Project” (Ref. No. 5204) in P. R. China, as described in the PDD, version 03.1 dated 14/08/2019, meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence Applus+ Certification submitted the request for renewal of the crediting period of the project activity.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small Scale
Applus+ Certification	LGAI Technological Center, S.A. (Applus)
BM	Build Margin
CAR	Corrective Action Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NDRC	National Development and Reform Commission, the DNA of P. R. China
NGO	Non-Governmental Organization
OM	Operational Margin
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

The curricula vitae of the DOE's validation team members are provided below:

Denny Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is a lead auditor appointed by Applus+ Certification for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ Certification, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5 years.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	Project Design Document version 02 (registered) Project Design Document version 02.1 (revised during 1 st verification and approved by EB) Project Design Document version 03.1	17/03/2011 15/08/2012 14/08/2019	Others
2	PP	ER spreadsheet version 02	14/08/2019	Others
3	PP	Nameplate of wind turbines		PP
4	PP	Power Purchasing Agreement		PP
5	PP	Operation Log		PP
6	UNFCCC website	CDM VVS for project activities, version 02.0		Others
7	UNFCCC website	CDM PS for project activities, version 02.0		Others
8	UNFCCC website	CDM PCP for project activities, version 02.0		Others
9	UNFCCC website	Assessment of the validity of the original/current baseline and to update the baseline at the renewal of a crediting period Version 03.0.1		Others
10	UNFCCC website	ACM0002 Grid-connected electricity generation from renewable sources, Version 19.0		Others
11	UNFCCC website	Tool to calculate the emission factor for an electricity system Version 07.0.0		Others
12	UNFCCC website	Information on UNFCCC website: https://cdm.unfccc.int/Projects/DB/DNV-CUK1315829951.3/view		Others
13	Editorial Committee of "China Electric Power Year Book"	China Electric Power Yearbook 2012-2016		Others
14	China National Bureau of Statistics	China Energy Statistical Yearbook 2013-2018		Others
15	China DNA	2017 Baseline Emission Factors for Regional Power Grids in China published by the DNA of China	20/12/2018	Others
16	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories		Others

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

Table 1. CL from this validation

CL ID	xx	Section no.		Date: DD/MM/YYYY
Description of CL				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 2. CAR from this validation

CAR ID	01	Section no.	D.4	Date: 13/08/2019
Description of CAR				
The Emission Factor applied is not the latest version available.				
Project participant response				Date: 14/08/2019
The latest Emission Factor has updated in the PDD.				
Documentation provided by project participant				
PDD version 03.1				
DOE assessment				Date: 16/08/2019
By checking updated PDD and ER calculation sheet, it is confirmed that the latest Emission factor has been used in the PDD and find to be correct.				

CAR ID	02	Section no.	D.5	Date: 13/08/2019
Description of CAR				
The monitoring parameters monitored in the Monitoring Plan is not consistent with that in the Registered PDD.				
Project participant response				Date: 14/08/2019
The monitoring plan has been updated in the PDD.				
Documentation provided by project participant				
PDD version 03.1				
DOE assessment				Date: 16/08/2019
By checking updated PDD, it is confirmed that monitoring parameters have been updated in the PDD and find to be correct.				

Table 3. FAR from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

- - - - -

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN) and version 02.0 of the “CDM project cycle procedure for project activities” (CDM-EB93-A06-PROC);• Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Renewal of crediting period Keywords: crediting period, project activities, validation report		