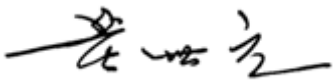
Validation report form for renewal of crediting period for CDM project activities

(Version 02.0)

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	Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project & Ref No.2953
Number and duration of the next crediting period	2nd, 7 years (14/08/2017-13/08/2024)
Version number of the validation report for RCP	01
Completion date of the validation report for RCP	25/01/2019
Version number of PDD to which this report applies	Version 4.1
Project participants	CGN Taishanchuandao Wind Power Co., Ltd. Carbon Resource Management Ltd. Carbon Resource Management S.A.
Host Party	People's Republic of China
Applied methodologies and standardized baselines	Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 19.0)
Mandatory sectoral scopes linked to the applied methodologies	Sectoral scope 1: Energy industries (renewable / non-renewable sources)
Conditional sectoral scopes linked to the applied methodologies	Not applicable
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	66,527 tCO_2e
Name and UNFCCC reference number of the DOE	China Classification Society Certification Company (CCSC), Ref No: 0046
Name, position and signature of the approver of the validation report for RCP	**Mr. HUANG Shiyuan, General Manager** 

SECTION A. Executive summary

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China Classification Society Certification Company (here after referred to as "CCSC") has performed an assessment of the request by CGN Taishanchuandao Wind Power Co., Ltd.

to renew the crediting period of CDM project Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project, UNFCCC registration No.2953, which was registered as a CDM project on 07/02/2010. It is a windpower project, located in Shangchuandao Island, Chuandao Town, Taishan County, Jiangmen City, Guangdong Province, People's Republic of China. As per the registered PDD, installed capacity of the project is 48.45MW consisting of 57 wind turbines, each with a capacity of 850kW. The electricity generated by the project will displace part of the electricity generated by the South China Power Grid (SCPG) which is dominated by fossil fuel-fired power plants. /1/.

Objective

The validation of renewal of crediting period serves as assessment of validity of the updated sections of the PDD of project that has opted for a renewal of the crediting period. The validation is an independent 3rd party assessment of the project's baseline, estimated GHG emission reductions or net anthropogenic GHG removals, the monitoring plan and the crediting period using the valid version of the approved baseline and monitoring methodology and, where applicable, the approved standardized baseline that is applicable to the project activity.

Scope of the validation

The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the PDD, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Standard, Kyoto Protocol Requirements, UNFCCC rules and associated interpretations.

The validation team has, based on the instructions in the VVS-PA employed a risk-based and step-wise approach when conducting the validation, focusing on the identification of significant risks for project implementation and the generation of 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.

Validation process

The validation has been performed the identification whether the PPs have updated sections of the PDD relating to the baseline, estimated GHG emission reductions or net anthropogenic GHG removals, the monitoring plan and the crediting period using the valid version(s) of the approved baseline and monitoring methodology and, where applicable, the approved standardized baseline that is (are) applicable to the project activity.

Therefore, the validation report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques. The validation process consisted of the following three phases:

1. Desk review of the project design and baseline and monitoring plan;
2. Follow-up interview with project stakeholders;
3. Resolution of outstanding issues and the issuance of the final validation report and opinion.

In the course of the validation, 1 Corrective Action Request (CAR), No Clarification Request (CL) and No Forward Action Request (FAR), were raised for the proposed CDM project activity (PDD Version 4.0, dated 07/11/2018) in relation to all relevant CDM requirements. Until issuance of this version of validation report, the raised CAR was successfully closed.

Validation conclusion

The review of the updated PDD (both Version 4.0 and Version 4.1 inclusive/3//4/) and additional background documents /7/, the subsequent follow up interviews, together with the review of

comments by Parties and Stakeholders, have provided CCSC with sufficient evidence to confirm that the project has satisfied the stated criteria.

The validation covered all project components and issues that need to be validated for the renewal of crediting period as a CDM project. CCSC hereby confirms that the project correctly applied the baseline and monitoring methodology ACM0002 Version 19.0 /11/ and meets the relevant UNFCCC requirements for the renewal of the crediting period.

CCSC hereby requests the renewal of crediting period of the project. Provided that the project is implemented and maintained as designed, the project is expected to achieve annual average emission reduction of 66,527tCO_2e within the 2nd crediting period (7 years, 14/08/2017-13/08/2024).

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.	Team Leader	IR	LIU	Ruyun	CCSC Central Office	✓		✓	✓

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	LI	Cuiping	CCSC Central Office
2.	Technical Reviewer	IR	ZHENG	Ling	CCSC Central Office
3.	Approver	IR	HUANG	Shiyuan	CCSC Central Office

SECTION C. Means of validation

C.1. Desk/document review

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After receiving the updated PDD (Version 4.0, dated 07/11/2018), a desk review of the PDD and additional background documents related to the project design was conducted by the validation team to verify the correctness, credibility and interpretation of presented data and information, and to cross check between information provided in the updated PDD and information from sources other than that used, if available. Review of the appropriateness of formulae and correctness of calculations was also carried out during this stage based on the approved methodology being applied. Documents reviewed and information sources used during desk review are listed in Appendix 3 to this report.

C.2. On-site inspection

The project description in the PDD for the renewable crediting period was verified from desk review. CCSC confirms the project design, construction, operation and monitoring plan were not changed.

The baseline scenario information can also be confirmed as it was defined by the applied methodology – ACM0002 Version 19.0. Therefore, CCSC has not conducted an on-site inspection for this validation of renewal of crediting period, which is in conformity with the paragraphs 28-32 of VVS-PA, version 02.0 /12/.

Therefore, the follow-up actions through telephone and emails were held on 24/12/2018 by the validation team, which is focused on the issues identified during the document review. The response from the representatives of the PPs and the consultant were received on 26/12/2018 /15/.

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

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	WU	Shaohai	CGN Taishanchuandao Wind Power Co., Ltd.	24/12/2018	1. Status of the project and any modifications(including PPs) with respect to the registered PDD; 2. Applicability of selected methodology; 3. National policies and changes; 4. Baseline of the project and its updates; 5. Emission factors and their updates; 6. Monitoring plan and changes.	LIU Ruyun
	WANG	Bangbing				
	FU	Ting				
2	LIU	Yang	CGN Carbon Asset Management (Beijing) Co., Ltd			

C.4. Sampling approach

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N/A.

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	-	-	-
Application and selection of methodologies and standardized baselines	-	-	-
Validity of original baseline or its update	-	1	-
Estimated emission reductions or net anthropogenic removals	-	-	-
Validity of monitoring plan	-	-	-
Crediting period	-	-	-

Project participants	-	-	-
Post-registration changes	-	-	-
Others (please specify)	-	-	-
Total	-	1	-

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	According to Para.412 VVS-PA version 02.0 /12/, CCSC validation team cross-checked and compared the revised PDD by employing the valid Project design document form listed in UNFCCC website /23/. Besides, the validation team compared the information transferred to the valid version of the PDD with that in the registered PDD /1/.

Findings

PDD Form

- The PDD used the latest valid version of the applicable Project design document form (Version 10.1) at UNFCCC website.
- The PDD is complete and meet all relevant requirements of instructions for filling out the Project design document form(Version 10.1) /23/ for CDM project activities and "CDM project standard for project activities" (Version 02.0) /13/

Description of project activity in updated PDD

The Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project locates in the Shangchuandao Island, Chuandao Town, Taishan County, Jiangmen City, Guangdong Province, China. The developer has installed 57 wind turbines, each with a capacity of 850kW. The total installed capacity is 48.45MW. The expected net generation of the project is 96,500MWh per year. As the SCPG is dominated by thermal power generation, the establishment of the proposed project activity could lead to greenhouse gas (GHG) emission reductions.

The project was registered as CDM project on 07/02/2010 with Reference No. 2953. The first crediting period of the project is 14/08/2010-13/08/2017. The second crediting period of the project would be 14/08/2017-13/08/2024. Following the methodology, during the second crediting period, the expected of emission reductions is 66,527 tCO_2e per year and 465,689 tCO_2e totally.

The coordinates of the wind farm are Latitude: 21°34′ 50″(N) to 21°39′ 03″(N) , Longitude: 112°46′ 11″(E) to 112°47′08″(E).

The key technical specification of the project are listed in the following table:

Table 1 Main technical specifications of the installed wind turbines

Item	Value
Manufacturer	VESTAS
Model	V52-850kW
Rated capacity (kW)	850kw
Rotor diameter (m)	52
Sweep-wind area (m2)	2124
Cut-in speed (m/s)	4
Rated wind speed (m/s)	19
Cut-out speed (m/s)	25
Rated voltage of generator (V)	690

Conclusion

As per requirement of Para.412(a)-(i) and (ii) of VVS-PA Version 02.0/12/, based on the findings above, CCSC validation team confirms that the PDD Version 4.1 was compliance with relevant valid version of project design document form and instructions therein for filling out PDD; the information transferred to the valid version of the PDD is materially the same as that in the registered PDD /1/.

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

Means of validation	Through document review and telephone interview, CCSC validation team re-assessed the applicability of baseline, monitoring methodology and standardized baseline in the methodology based on the knowledge of the

	project from the initial validation, subsequent verifications and the confirmation from the PPs.
Findings	At the time of registration, the applied methodology of the project was ACM0002 Version 09 Consolidated methodology for grid-connected electricity generation from renewable sources. The updated PDD for the renewal of crediting period applied the valid version of the selected approved methodology ACM0002 Version 19.0, which is valid from 31/08/2018 onwards; hence it meets the condition that for renewal of the crediting period, the methodology shall not be changed. The application of the selected methodology is justified as below: • The project involves electricity capacity additions to the grid from wind power resources; and • The project does not involve switching from fossil fuels to renewable energy at the site of the project; and • The geographic and system boundaries of the SCPG can be clearly identified and information on the characteristics of the grid is available. Therefore, the applied methodology ACM0002 Version 19.0 is applicable to the project activity.
Conclusion	As per requirement of Para. 412(a)-(iii) of VVS-PA Version 02.0 /12/, based on the findings above, CCSC validation team confirms the project meets each of the applicability conditions of the methodology; it also meets all the other stipulations and limitations mentioned in the other sections of the methodology; the continued validity of the baseline is assessed and the emissions which would be resulted from the baseline scenario are updated at the start of the 2nd and 3rd crediting period, as per the requirements of ACM0002 Version 19.0.

D.3. Validity of original baseline or its update

Means of validation	According to Para.404 VVS-PA Version 02.0 /12/, CCSC validation team reviewed the updated PDD, and evaluated whether project participants assess and incorporate the impact of national and/or sectoral policies and circumstances existing at the time of requesting renewal of the crediting period on the current baseline GHG emissions, without reassessing the baseline scenario. Where data and parameters used for determining the original baseline that was determined ex ante (and not monitored during the crediting period) are no longer valid, CCSC validation team identified whether PPs update such data and parameters in accordance with 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 /18/.
Findings	The following 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 /18/ as per VVS-PA Version 02.0 /12/ were applied to assess the continued validity of the baseline and/or to update the baseline at the renewal of a crediting period: **Step 1- Assess the validity of the current baseline for the next crediting period** The CDM PS-PA (Version02.0) /13/ requires assessing and incorporating the impact of new relevant national and/or sectoral policies and circumstances existing at the time of requesting renewal of the crediting period on the current baseline GHG emissions, without reassessing the baseline scenario. 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 The current baseline remains the same as it was in the registered PDD (version 3.1, date: 18/08/2009) within the 1st crediting period. The validation team has confirmed that no relevant mandatory national and/or sectoral polices applicable to the project activity came into effect since the date of earlier registered PDD within the 1st crediting period till now. Although national policies encourage the development of renewable energy, but the renewable energy resources are not mandatory. Electricity generated by fossil fuel-based plants still dominates the power supply (refer to China Electric Power Yearbook /19/). Thus, it can be concluded that the current baseline still complies with all the relevant policies. **Step 1.2- Assess the impact of circumstances** The existing scenario is that South China Power Grid (SCPG) provides the same electricity service as the proposed project and South China Power Grid is dominated by the coal fired power plants. The validation team confirmed that the current baseline identified in the registered PDD (version 3.1, date: 18/08/2009) within the 1st crediting period is still valid for the second crediting period. In conclusion, as per the requirement of the sub-step, it has been assessed that there were no impact of circumstances existing at the time of requesting of the crediting period on the current baseline scenarios. **Step 1.3- Assess whether the continuation of the use of current baseline equipment(s) is most likely scenario for the crediting period for which renewal is requested** In the absence of the project activity, the project owner would not have constructed the wind power plant and electricity would have been generated by other power plants connected to the grid, which is also the identified baseline scenario. This sub-step is not applicable for this project as the baseline scenario is electricity provided by the grid and the project proponent or 3rd-party(ies) would not undertake an investment later due. **Step 1.4- Assessment of the validity of the data and parameters** The emission factor that was determined only at the start of the pervious crediting period is no more valid on account of change in the grid configuration. As per the requirement of ACM0002 Version 19.0 and the methodological tool “Tool to calculate the emission factor for an electricity system” version 7.0 /16/ , new data available should be used to revise the baseline scenario and emissions for updating the baseline at the start of the 2nd crediting period. Hence, the emission factor needs to be updated accordingly. **Step 2- Update the current baseline and the date and parameters** **Step 2.1- Update the current baseline** As per the requirement of the sub-step, the update for baseline emissions of the 2nd crediting period should be based on the latest approved version of the methodology ACM0002 Version 19.0 applicable to the project activity taking into account the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period. A detailed calculation process of update of the baseline emissions is indicated in D.4 Findings of this report. **Step 2.2- Update the data and parameters**

	The baseline emission from the project has been calculated as per the Tool to calculate the emission factor for an electricity system, version 7.0 /16/. However, in the updated PDD Version 4.0, the calculation of the grid emission factor was not based on the latest data available, thus, **CAR-1** was raised. In response, the PP has revised the PDD. It is confirmed that the calculation of the grid emission factor in the PDD (Version 4.1) refers to the latest version of 2017 Baseline Emission Factors for Regional Power Grids in China /17/ published by China's DNA (NDRC) on 20/12/2018, which is the latest valid available data at the time of requesting renewal of the crediting period and valid for calculation of baseline grid emission factor of the second crediting period. Thus, **CAR-1** was closed. A detailed calculation process of the update of the emission factor is indicated in D.4 Findings of this report.
Conclusion	According to the findings, CCSC validation team 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 the project remains the same as that in the registered PDD version 3.1 within the 1st crediting period as "*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, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*. According to Para. 283 in PS-PA (version 02.0), the demonstration of the validity of the original baseline or its update does not require a reassessment of the baseline scenario.

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	CCSC validation team checked the whole calculation process of GHG emission reductions including the calculations of baseline emissions, project emissions and leakage and emission reductions in the updated PDD against referenced sources and applied methodology and tools. The parameters and equations presented in the updated PDD and further documentation have been compared with the information and requirements presented in applied methodology and respective tools. CCSC validation team assessed whether the baseline, the estimated GHG emission reductions in the updated PDD comply with the applicable requirements in the section 7.5.5 PS-PA version 02.0, and the valid version of the methodology and, where applicable, the standardized baseline that is(are) applicable to the registered CDM project activity.
Findings	**<u>Baseline Emissions</u>** The calculation of the baseline emissions followed the procedures described in the methodology ACM0002 Version 19.0. Baseline emissions are the product of the grid emission factor ($\boldsymbol{EF_{grid,\,CM,\,y}}$ in tCO_2/MWh) times the net electricity supplied by the proposed project to the grid ($\boldsymbol{EG_y}$ in MWh). In the updated PDD, the calculation of the grid emission factor is calculated based on the latest data which was available at the commencement of validation. The data used is quoted from "China Energy Statistical Yearbook(2014-2016)" and "China Electric Power Yearbook (2014-2016)"/19//20/. The document "2017 Baseline Emission Factors for Regional Power Grids in China" is also referred to, as this document provides guidance on the calculation of baseline emission factors for project electricity system and connected electricity systems in China. The grid emission factor is determined as Combined Margin(CM), combination of the Operating Margin (OM) and Build Margin (BM), which is

	for the second 7-year crediting period following the "*Tool to calculate the emission factor for an electricity system*". **Operating Margin (OM)**. Ex-ante option was selected. Simple OM method was chosen and this is justified since the low cost/must run resources constitute less than 50% of total grid generation in the average of the five recent years. The Simple OM emission factor is "*calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units*", as per "*Tool to calculate the emission factor for an electricity system"* (Version 07.0). Because (1) the net electricity generation and a CO_2 emission factor of each power unit are not available in China, and (2) the nuclear and renewable power generations are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known in China, at the same time, (3) off-grid power plants are not included in the calculation. The "*Option B – Calculation based on total fuel consumption and electricity generation of the system"* is adopted for Simple OM calculation, which is "*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*". Net calorific values of each fuel type were obtained from the China Energy Statistical Yearbook. IPCC 2006 default values were used for the CO_2 emission factors of each type of fossil fuel. The values used and the calculation of the simple OM is considered to be reasonable, and is in line with official data published by the Government of China. The OM emission factor is calculated as the weighted average of the three years. The $EF_{grid,OM,y}$ is calculated to be 0.8367tCO_2/MWh. The sources and calculation have been verified by CCSC. **Build Margin (BM)**.BM emission factor was calculated in updated PDD with Option 1 of "*Tool to calculate the emission factor for an electricity system*" (version 07.0) with *ex ante* approach. Because plant specific fuel consumption and electricity generation data are not publicly available in China, the guidance given by the CDM Executive Board for a deviation from methodology AM0005 has been applied for calculation of the BM emission factor for the proposed project, which suggests to "use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM)" . In accordance with this guidance, the build margin consists of the set of power capacity additions in the electricity system that comprises 20% of the generation capacity (in MW) of the system, that have been built most recently, based on the aggregate incrementally installed capacity of all generation sources in year y. The emissions factor of fossil fuel fired power generation in South China Power Grid (SCPG) is calculated using the proportions of GHG emissions from solid, liquid and gaseous fuels in the total GHG emissions related to power generation as the weights, and the emission factors of the most advanced commercial generation technologies available in the host country (as published by the DNA). Finally, based on data in the *China Electric Power Yearbook 2014-2016* $EF_{grid,BM,y}$ is calculated to be 0.2476 tCO_2/MWh, which is in line with the 2017 Baseline Emission Factors for Regional Power Grids in China. The sources and calculation have been verified by CCSC.

	Combined Margin (CM).CM emission factor is calculated following "weighted average CM method (option A)" of "*Tool to calculate the emission factor for an electricity system*" (version 07.0). The weighting is set to be 0.75 and 0.25 for OM and BM emission factors respectively. For this project, the combined baseline emission factor will remain fixed during the second crediting period, via $EF_{grid,\ CM,\ y}=EF_{grid,\ OM,\ y}\times\ \omega_{OM}\ +\ EF_{grid,\ BM,\ y}\times\ \omega_{BM}$ =0.8367×0.75+0.2476×0.25=0.6894 tCO_2/MWh. As validated above, the CM emission factor of the project is 0.6894tCO_2/MWh. The estimated annual electricity supplied to the South China Power Grid (SCPG) by the project is 96,500MWh. Thus, according to ACM0002 Version 19.0, the annual baseline emissions in the second crediting period are calculated as: $BE_y= EF_{gird,\ CM,\ y}\times EG_y$= 0.6894 ×96,500 = 66,527tCO_2e. The adoption of *impart* in CER calculation spreadsheet results in the emission reduction of 66,527 tCO_2e above, which is conservative /5/. **Project Emissions** The project emission is zero. Based on document review, the validation team regards this consideration is correct, and in line with methodology ACM0002 Version 19.0. **Leakage** The project does not need to consider leakage. The validation team regards this consideration is correct and in line with methodologyACM0002 Version 19.0. **Emission Reductions** According to ACM0002 Version 19.0, emission reductions are calculated as follows: $ER_y= BE_y- PE_y$ Where: ER_y Emission reductions in year y (tCO_2e/yr) BE_y Baseline emissions in year y (tCO_2e/yr) PE_y Project emissions in year y (tCO_2e/yr) Hence, for this project, the estimated average annual emission reductions of 66,527tCO_2e, resulting in estimated amount of GHG emission reductions (ER_y) is 465,689tCO_2e during the 2nd crediting period 7 years (14/08/2017-13/08/2024).
Conclusion	

D.5. Validity of monitoring plan

Means of validation	The validation team reviewed the updated PDD Version 4.0, checked whether the PDD update the monitoring plan section in accordance with all relevant applicable requirements in the PS-PA; whether the PDD list all data and parameters to be monitored, as required by the applied methodology and whether the monitoring plan explained the operational and management structure, responsibilities and institutional arrangement for data collection/archiving, QA/QC procedures.
Findings	The project applies the approved consolidated monitoring methodology ACM0002 Version 19.0 for grid-connected electricity generation from renewable sources. As validated, the selected monitoring methodology is

applicable for the project activity as it involves grid-connected renewable power generation using wind power.

Monitoring Parameters

According to the applied methodology, the combined margin emission factor is determined ex-ante based on the most recent information available at the start of the validation, and need not to be monitored. The project emission or leakage is zero, and not required to be monitored either. For the proposed project, the following parameters will be monitored in accordance with the methodology:

The parameters monitored ex-post include:

-$EG_{export,y,}$ Electricity exported to SCPG by the project in year *y.*

-$EG_{import,y,}$ Electricity imported from SCPG by the project in year *y*

-$EG_{y,}$ Net electricity supplied to the grid by the project in year *y*

Monitoring Arrangement

The main meter will be installed at the substation to the grid and the back- up meter will be installed at the substation of the project site; both of the meters are bidirectional meters. The meters will be installed in accordance with the industry standards. The error resulting of the meters will not exceed 0.5%. The main meter and backup meter will be checked and accepted by the grid and the project developer before the project operation. All the installed meters are sealed after installation or calibration.

If the proposed project has to share the same transformer, substation or transmission line with some other wind farms, appropriate additional meters will be installed at the project site so that the electricity generation can be monitored for each wind farm separately so as to calculate the share of this wind farm of the net supply to the grid.

The net electricity supplied by the project will be calculated as follows:

$EG_{export,y} = EG_{export,total} * EG_{project} / (EG_{project} + EG_{others})$
$EG_{import,y} = EG_{import,total}$
$EG_{y} = EG_{export,y} – EG_{import,y}$

EG_{export}, total is total exported electricity to the grid based on the data metered by the main meter at the substation;
$EG_{import,total}$ is total imported electricity from the grid based on the data metered by the main meter at the substation;
$EG_{project}$ is the electricity generation of the proposed project based metered by separate meters at the project site;
EG_{others} is the electricity generation of other wind farm projects based metered by other separate meters;
EG_{y} is the net electricity supplied to thr grid by the proposed project.

The $EG_{export,total}$ and $EG_{import,total}$ can be cross checked by sale receipt.

Data Management and Quality Control

All monitoring data and records will be archived in electronic format as well as on paper. The electronic documents will be backed up on compact disc or hard disc. The project developer will also keep copies of sale receipts and

	prepare a monitoring report at the end of each year, which includes the net electricity generation, the monitoring data summary, the calibration records, and the emission reductions calculation. All the electronic and paper documents will be archived during the crediting period plus two years. The calibration of meters is conducted by a qualified organization in compliance with the national standard and sectional regulations to ensure the accuracy. Each of the meters is calibrated so that they will have a valid calibration once per year. The meters must be sealed after calibration. The calibration records must be archived together with other monitoring records. When the main meter or back-up meter have a breakdown, the party finding the breakdown should tell another party and inform the qualified calibration organization to check, calibrate, test and treat the meter so as to recover the normal monitoring state. **Emergency procedures** When the main meter or back-up meter have a breakdown, the electricity generation difference will be treated as follows: (1) When one of the two meters has a breakdown, the readings of the other meter will be adopted; (2) If both the main meter and back-up meter have breakdowns, the net electricity supplied to the grid will be calculated from the readings of other meters and deducting the line losses.
Conclusion	In conclusion, based on document review, and stakeholder interview, together based on CCSC's local and sectoral expertise, CCSC validation team confirms that: • The monitoring plan is in compliance with the requirements of the methodology. • Monitoring arrangements described in the monitoring plan are feasible within the project design. The PP's ability to implement the monitoring plan can be guaranteed.

D.6. Crediting period

Means of validation	CCSC validation team checked whether the updated PDD indicated that the next crediting period commences on the day immediately after the expiration of the current crediting period by means of a document review, use of official sources and interviews with relevant personnel by phone.
Findings	The 1st 7 years renewable crediting period was from 14/08/2010 to 13/08/2017; the PPs are applying for a 2nd renewable crediting period, which is 7 years (14/08/2017-13/08/2024).
Conclusion	As per the requirement of Para. 412(a)(v) VVS-PA version 02.0, based on the findings above, the validation team confirmed that the next crediting period of the registered CDM project activity commences on the day immediately after the expiration of the current crediting period.

D.7. Project participants

Means of validation	As per Para.412 of VVS-PA version02.0 required, CCSC validation team checked whether the names of the project participants included in the

	updated PDD are consistent with the names of the project participants on the UNFCCC website.
Findings	The project participants in updated PDD are CGN Taishanchuandao Wind Power Co., Ltd. & Carbon Resource Management Ltd. and Carbon Resource Management S.A., which are checked against the UNFCCC website and found consistent.
Conclusion	Therefore, CCSC validation team concluded that the name of project participant in the updated PDD is the consistent with the actual situation.

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 or applied standardized baselines	N	N/A	N/A
Corrections	N	N/A	N/A
Change to the start date of the crediting period of the project activity	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 applied standards or tools	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

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CCSC has taken the following quality control measures within the validation team and of the validation process according to relevant CCSC's internal procedures:

- The contract review of the validation was conducted and concluded that CCSC has the accredited scope and competence to validate the project with impartiality as well;
- The validation team was selected with due considerations given in terms of the competence and impartiality;
- The validation team carried out the validation work and compiled a validation report strictly following CCSC's Procedures for Implementation of Validation.

The validation report submitted by the validation team was subjected to a technical review and decision-making process, the technical reviewers and decision-makers are qualified and independent from the validation team. If any issue is raised during technical review and/or decision-making the same is to be discussed between the issue-raiser and the team leader as well as the PP. All issues must be satisfactorily addressed before the submission of the report for final approval. The persons who conducted the technical review and decision-making for the project are shown on Section B of this report and their Certificates of Competence can be found in Appendix 2 of this report.

The report approved by the authorized official of CCSC as the final report together with relevant documents are submitted to CDM EB through the UNFCCC dedicated web-platform for registration (only if an unconditioned positive validation opinion is concluded).

SECTION F. Validation opinion

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The validation team assigned by China Classification Society Certification Company (CCSC) concludes that Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project, as described in the PDD Version 4.1 meets all relevant UNFCCC criteria for the Clean Development Mechanism, Clean Development Mechanism Validation and Verification Standard (VVS-PA, Version 02.0) and host country criteria. Hence CCSC requests the project for renewal of crediting period by the CDM Executive Board.

The validation was executed by taking the following methods and in the following steps:

1. Desk review of the project design and baseline and monitoring plan;

2. Follow-up interview with project stakeholders;

3. Resolution of outstanding issues and the issuance of the final validation report and opinion.

In the course of the validation, 1 Corrective Action Request (CAR) , 0 Clarification Request (CL) and 0 Forward Action Request (FAR), were raised for the proposed CDM project activity (PDD Version 4.0) in relation to all relevant CDM requirements. Until issuance of this version of validation report, the raised CAR has been successfully closed.

The review of the PDD (Version 4.0 and Version 4.1) and additional background documents, the subsequent follow up interviews, together with the review of comments by Parties and Stakeholders, have provided CCSC with sufficient evidence to confirm that the project has satisfied the stated criteria.

The validation covered all project components and issues that need to be validated for the renewal of crediting period as a CDM project. In our opinion, CCSC hereby confirms that the project correctly applied the baseline and monitoring methodology ACM0002 Version 19.0/11/and meets the relevant UNFCCC requirements for the renewal of the crediting period.

CCSC hereby requests the renewal of crediting period of the project. Provided that the project is implemented and maintained as designed, the project is expected to achieve annual average emission reduction of 66,527tCO_2e within the 2nd crediting period.

For and on behalf of CCSC

Authorized Signature
Name: Huang Shiyuan

Date: 25**/01/2019**

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CCSC	China Classification Society Certification Company
CDM	Clean Development Mechanism
CME	Coordinating/managing entity
CER	Certified Emission Reduction
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
EB	Executive Board
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LoA	Letter of Approval
MP	Monitoring Plan
NDRC	National Development and Reform Committee
NGO	Non-governmental Organization
SCPG	South China Power Grid
ODA	Official Development Assistance
OM	Operating Margin
PCP-PA	CDM Project Cycle Procedure for project activities
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
PS-PA	CDM Project Standard for project activities
UNFCCC	United Nations Framework Convention on Climate Change
VVS-PA	CDM Validation and Verification Standard for project activities

Appendix 2. Competence of team members and technical reviewers

CCS认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue:15/10/2018

Ms. Liu Ruyun

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.2/TA13.2

■ CDM verifier for Technical Area(s): TA1.2/TA13.2

☐ Technical expert for Technical Area(s):

Huang ShiYuan
CCSC General Manager

CCS认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue:15/10/2018

Ms. Li Cuiping

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.1/TA1.2/TA9.2

■ CDM verifier for Technical Area(s): TA1.1/TA1.2/TA9.2

☐ Technical expert for Technical Area(s):

Huang ShiYuan
CCSC General Manager

CCS认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue:15/10/2018

Ms. Zheng Ling

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.2

■ CDM verifier for Technical Area(s): TA1.2

■ Technical expert for Technical Area(s): TA13.1

Huang ShiYuan
CCSC General Manager

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/1/	Carbon Resource Management (CRM)	Registered PDD, Version 3.1	18/08/2009	Others
/2/	SGS United Kingdom Limited	Validation report of Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project, Version 1	18/08/2009	Others
/3/	CGN Carbon Asset Management (Beijing) Co., Ltd	The updated PDD for 2nd crediting period, Version 4.0	07/11/2018	PP
/4/	CGN Carbon Asset Management (Beijing) Co., Ltd	The updated PDD for 2nd crediting period, Version 4.1	07/01/2019	PP
/5/	CGN Carbon Asset Management (Beijing) Co., Ltd	Emission Reductions Calculation Spreadsheet (version 01)	/	PP
/6/	CGN Carbon Asset Management (Beijing) Co., Ltd	Emission Reductions Calculation Spreadsheet (version 02)	/	PP
/7/	CGN Taishanchuandao Wind Power Co., Ltd.	Monitoring reports and corresponding verification reports for the monitoring periods of the 1st crediting period	https://cdm.unfccc.int/Projects/DB/SGS-UKL1252054383.18/view	Others
/8/	CGN Taishanchuandao Wind Power Co., Ltd.	Power Purchase Agreement	/	PP
/9/	CGN Taishanchuandao Wind Power Co., Ltd.	Grid connection diagram	/	PP
/10/	CGN Taishanchuandao Wind Power Co., Ltd.	The MoC information	/	Others
/11/	CDM-EB	Methodology ACM0002 Version 19.0	31/08/2018	Others
/12/	CDM-EB	CDM validation and verification standard for project activities (VVS-PA), Version 02.0	29/11/2018	Others
/13/	CDM-EB	CDM project standard for project activities (PS-PA), Version 02.0	29/11/2018	Others
/14/	CDM-EB	CDM project cycle procedure for project activities (PCP-PA), Version 02.0	29/11/2018	Others
/15/	CGN Taishanchuandao Wind Power Co., Ltd.	Records for PP's interview and the relevant responses	24/12/2018	PP

/16/	CDM-EB	Tool to calculate the emission factor for an electricity system, Version 07.0	31/08/2018	Others
/17/	China's DNA	2017 Baseline Emission Factors for Regional Power Grids in China	http://qhs.mee.gov.cn/kzwsqtpf/201812/P020181220579925103092.pdf	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	02/03/2012	Others
/19/	China Power Yearbook Editing Committee	China Electric Power Yearbook 2014, 2015 and 2016	N/A	Others
/20/	China Energy Yearbook Editing Committee	China Energy Statistical Yearbook 2014, 2015 and 2016	N/A	Others
/21/	CDM-EB	Glossary of CDM terms, Version 09.1	01/09/2017	Others
/22/	UNFCCC	Kyoto Protocol	/	Others
/23/	CDM-EB	Project design document form, Version 10.1	28/06/2017	Others

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

Table 1. CL from this validation

CL ID	N/A	**Section no.**	N/A	**Date:** N/A
Description of CL				
N/A				
Project participant response				**Date:** N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				**Date:** N/A
N/A				

Table 2. CAR from this validation

CAR ID	**CAR-1**	**Section no.**	B.6	**Date:** 29/12/2018
Description of CAR				
Since the year of 2017 baseline emission factor of China's regional power grid has just been released, the latest version of emission factor needs to be updated in the PDD.				
Project participant response				**Date:** 07/01/2019
The baseline emission factor has been updated in the PDD according to *2017 baseline emission factor of China's regional power grid* published by Chinese DNA on December 20th 2018.				
Documentation provided by project participant				
The updated PDD for 2nd crediting period, Version 4.1				
DOE assessment				**Date:** 07/01/2019
It is confirmed that the latest version of emission factor has been adopted to calculate grid emission factor and the amount of emission reductions is corrected in the updated PDD (Version 4.1). Thus, CAR-1 was 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				

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Document information

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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.

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