



Verified Carbon Standard

VALIDATION REPORT FOR GUOHUA RONGCHENG PHASE III WIND FARM PROJECT



DOCUMENT PREPARED BY CHINA CLASSIFICATION SOCIETY CERTIFICATION
CO. LTD.

Project Title	Guohua Rongcheng Phase III Wind Farm Project
Version	2.0
Report ID	0104020322084(001-002)

Report Title	VCS Validation Report for Guohua Rongcheng Phase III Wind Farm Project
Client	Guohua Energy Investment Co., Ltd.
Date of Issue	19-09-2022

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Summary:

China Classification Society Certification Co. Ltd. (hereafter referred to as “CCSC”) has been commissioned by Guohua Energy Investment Co., Ltd. to perform the validation of the project activity “Guohua Rongcheng Phase III Wind Farm Project” (hereafter referred to as “the Project”) on the basis of requirements of Verified Carbon Standard (VCS) Version 4.3, VCS Validation and Verification Manual, and the approved Clean Development Mechanism (CDM) methodology ACM0002 version 20.0, as well as criteria given to provide for consistent project operations, monitoring and reporting. The validation report and the validation protocol are summarizing the findings of the validation.

The validation scope is defined as an independent and objective review and ex-ante determination of the estimated GHG emission reductions, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using CCSC’s internal procedures.

The Project is a wind farm project located in Chengshan Town, Rongcheng City, Shangdong Province which uses wind resource for electricity generation. The installed capacity of the project activity is 49.5 MW, consisting of 33 sets of wind turbines with unit capacity of 1.5MW. The average annual power delivered to the grid by the project is expected to be 100,263MWh. The annual emission reductions in the crediting period is 82,907tCO₂.

One Corrective Action Request (CAR) and one Clarification Request (CL) were raised in the verification process and successfully closed upon the project participant taken actions and submitted the revised monitoring report and supporting evidence. No Forward Action Request (FAR) was raised during this verification. Taking into account this output, the project proponent revised its project document.

In summary, it is CCSC’s opinion that the Project correctly applies the VCS approved CDM methodologies ACM0002 version 20.0 and meets the relevant VCS Standard v4.3 requirements and the relevant host country criteria.

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1 INTRODUCTION

1.1 Objective

Guohua Energy Investment Co., Ltd. (hereafter referred to as “the PP”) has commissioned CCSC to conduct the validation of the “Guohua Rongcheng Phase III Wind Farm Project” (here after referred as the Project), which is located in Chengshan Town, Rongcheng City, Shangdong Province.

CCSC as the validation/verification body (VVB) of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065.

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third-party assessment of the project baseline. In particular, the project's baseline and the monitoring plan (MP) are validated in order to confirm that the project baseline, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Assessment of validation is a requirement for all VCS projects seeking registration and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Voluntary Carbon Units (VCUs).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS project description (VCS-PD), the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against VCS Version 4.3 requirements, UNFCCC rules and associated interpretations.

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

1.3 Level of Assurance

CCSC has undertaken a reasonable assurance engagement in accordance with VCS Version 4.3. It requires a reasonable level of assurance in validation that GHG assertions are free of material errors, omissions and misrepresentations. The validation conclusion is based on the VCS Project Description (VCS-PD), supporting evidences made available to the verifier and information collected through performing interviews.

1.4 Summary Description of the Project

The Project is located in Chengshan Town, Rongcheng City, Shangdong Province. The installed capacity of the project activity is 49.5 MW, consisting of 33 sets of wind turbines with unit capacity of 1.5MW. The average annual power delivered to the grid by the project is expected to be 100,263MWh. The power output will be delivered to the North China Power Grid. The annual emission reductions in the crediting period are 82,907 tCO₂e and total emission reductions during the 10 years crediting period are 829,070 tCO₂e. The project started construction on 01/12/2009. The first power unit started operation on 17/10/2010, and all the wind turbine generators were put into operation on 19/12/2010.

The first VCS crediting period is from 17/10/2010 to 16/10/2020 (10 years, renewable). The project is applying for the crediting period renewal and the second crediting period is expected from 17/10/2020 to 16/10/2030 (10 years). The estimated annual average emission reductions are 82,907 tCO₂e.

The project activity was registered as a CDM project activity on 19/07/2012 with UNFCCC reference number 6580 which is available at <https://cdm.unfccc.int/Projects/DB/SGS-UKL1341239637.71/view>. After the registration of CDM, the project has been registered as a VCS project with a VCS project ID 1304 which is available at <https://registry.verra.org/app/projectDetail/VCS/1304>.

2 VALIDATION PROCESS

2.1 Method and Criteria

Validation was conducted using CCSC's procedures in line with the requirements specified in the VCS Standard version 4.3, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques. No sampling approach was utilized during the site visit as well as validation for project activity. CCSC completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of (if applicable):

- Project Details;
- Application of Methodology;
- Estimated GHG Emission Reduction and Removals;
- Monitoring;
- Safeguards etc.

CCSC conclude that the reported information in the project description is complete and accurate.

2.2 Document Review

The VCS-PD was submitted by Guohua Energy Investment Co., Ltd. and additional background documents related to the project design and baseline were reviewed.

Furthermore, cross checks were made between information provided in the VCS-PD and information from sources other than those used.

The validation conclusions presented in this report relate to the Project as described in the VCS-PD version 01 dated 02/07/2022. To address CCSC's corrective action and clarification requests, the VCS-PD was revised to version 02 dated 10/09/2022.

Appendix B of this report contains a complete list of all documents and proofs reviewed by the validation team.

2.3 Interviews

The follow-up interview was conducted the physical site visit on 10/07/2022 by Mr. LI Xingtong (Team Leader) and Mr. LIANG Cheng (Trainee) from CCSC, which is focused on the issues identified during the desk review. The main topics of the interviews are summarized in Table 1.

Table 1. Interview topics

Interviewed Organization and Persons	Interview Topics
Guohua Rongcheng Phase III Wind Farm Project Mr. Sun Tian, Director of the plant Mr. SONG Junxiao, Operation manager of the plant Mr. YUE Zhuangzeng, Safety manager of the plant	<ul style="list-style-type: none"> ↻ Status of the project and any modifications (including PPs) with respect to the VCS-PD/CDM-PDD for post registration changes within the 1st crediting period; ↻ Applicability of selected methodology; ↻ National policies and changes; ↻ Baseline of the project and its updates; ↻ Emission factors and their updates; ↻ Monitoring plan and changes.
Guohua Energy Investment Co., Ltd. Mr. HU Weiping, Project Manager	
Local stakeholders: Ms. YU Xiuping Mr. QU Haibo Ms. ZHANG Yuling Mr. LIU Jun	<ul style="list-style-type: none"> ↻ The process and participation of the stakeholder consultation ↻ The environmental and social impacts of the project ↻ Any complaints by the local stakeholders and the implementation of the mitigation measures

2.4 Site Inspections

The validation team performed the on-site validation for the project on 10/07/2022. The interviewed personnel and objective are listed in above table. Site inspection was conducted as follows:

Duration of on-site inspection: 10/07/2022				
No.	Activity performed on-site	Site location	Date	Team member
1.	Open meeting - Scope of work - VCS rules and regulations - Validation methodology/tool/guideline - Timeframe - Procedures for Validation - CCSC internal approval process - Confidentiality	project site	10/07/2022	Mr. LI Xingtong Mr. LIANG Cheng
2.	Management interview - Implementation & Operation - Monitoring System - Information flow - Management & Operation Procedure - Local stakeholder consultation - Sustainable development contribution	project site	10/07/2022	Mr. LI Xingtong Mr. LIANG Cheng
3.	Site visit - Inspection of installations (Turbines, Centre control room, On-site Meters, etc.) - Interviews about operation procedures, meter reading, training, etc. - Environment Impact	Project site	10/07/2022	
4.	Documents review - Project description including Implementation, methodology application, baseline, project boundary, monitoring plan, etc. - QA/QC procedures - Qualification & Training - ER calculations	Project site	10/07/2022	
5.	Close meeting - Summary of findings - Follow-up actions	Project site	10/07/2022	

2.5 Resolution of Findings

The objective of this phase of the validation is to resolve issues that require further elaboration, research or expansion prior to CCSC’s positive conclusion on the project design.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

- a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions;
- b) The applicable VCS requirements have not been met;
- c) There is a risk that emission reductions cannot be monitored or calculated.

A Clarification Request (CL) is raised, if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) may also be raised during validation, to identify issues related to project implementation that require review during the first validation of the project activity.

To guarantee the transparency of the validation process, the issues raised, the responses provided by the project participants, the means of validation of such responses and references to any resulting changes in the VCS-PD or supporting annexes are documented in the Appendix D.

2.5.1 Forward Action Requests

No Forward Action Requests were raised during this validation.

3 VALIDATION FINDINGS

3.1 Project Details

1. Basic information

The relevant information is listed below, which is consistent with the VCS-PD for the 1st crediting period:

Table 2 The Project information

Project Title:	Guohua Rongcheng Phase III Wind Farm Project
Sectoral Scope:	01, “Energy Industries (renewable- /non-renewable resources)”

Methodologies Used	ACM0002 version 20.0
Project Start Date:	17/10/2010
Project Participants:	Guohua Resourceful (Rongcheng) Wind Power Generation Co., Ltd. (P.R. China, Host Party)
Project Location:	The project is located in Chengshan Town, Rongcheng City, Shangdong Province. The coordinates of the project location are 121 ^o 11' -122 ^o 42' east and 36 ^o 41' -37 ^o 35' north.
Annual ERs	82,907 tCO _{2e}

CCSC also confirmed the location, technical information etc. of the project provided in the revised VCS-PD is same with the VCS-PD for the 1st crediting period.

Table 3 The Project technical specifications

Parameter	Value
Model of wind turbine	GW82/1500
Manufacture	Xinjiang Goldwind Science & Technology Co., Ltd.
Rotor Diameter	82m
Amount of vane	3
Height of hub	70m
Cut-in wind speed	3m/s
Cut-out wind speed	22 m/s
PLF	0.231
Lifetime	20years

2. Project crediting period

Renewable crediting period has been chosen by the Project, the 2nd 10 years crediting period is 17/10/2020 to 16/10/2030 which is in compliance with the VCS Standard ver 4.3.

3. Project scale and estimated GHG emission reductions or removals

According to VCS standard, Projects are categorized by size according to their estimated average annual GHG emission reductions or removals:

1) Projects: Less than or equal to 300,000 tonnes of CO₂e per year.

2) Large projects: Greater than 300,000 tonnes of CO₂e per year.

The estimated annual average GHG emission reductions of the Project are 82,907tCO₂e. CCSC confirmed that the Project is a Project.

4. Conditions prior to project initiation

Prior to the initiation of the project, Electricity delivered to the grid by the Project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. This is also the baseline scenario.

5. Project compliance with applicable laws, statutes and other regulatory frameworks

As described in the validation report of the registered VCS-PD, the Project complies with relevant laws and regulations. CCSC also confirmed the Project is compliance with applicable laws, statutes and other regulatory frameworks.

6. Participation under other GHG programs

- Projects registered (or seeking registration) under other GHG program(s)

The Project was registered as CDM project activity with the UNFCCC Reference No.6580.

133,851 CERs generated in monitoring period from 01/08/2012 to 31/01/2014 has been issued, and 152,804 emission reductions from 17/10/2010 to 18/07/2012 was issued as VCUs in VCS system. Emission reductions during the period from 01/02/2014 to 16/10/2020 is requesting VCU issuance under VCS. The PP has provided a declaration for no double counting issues will be involved with the project.

- Rejection by other GHG programs

The Project has not been rejected by other GHG programs as confirmed through the GS, VCS and CDM project data base.

- Emissions trading programs and other binding limits

Net GHG emission reductions or removals generated by the Project will not be used for compliance with an emissions trading program or for meeting binding limits on GHG emissions.

- Other forms of environmental credit sought or received and eligible to be sought or received

The Project has not created another form of Environmental Credit.

7. Additional information relevant to the project, including:

- Leakage management for AFOLU projects

N.A. for it's non-AFOLU project.

- Commercially sensitive information

N.A.

- Sustainable development contributions

By checking China's National Plan on Implementation of the 2030 Agenda for Sustainable Development and 17 SDGs defined by UNDP, and interviewing with stakeholders during site visit, it is confirmed that the project activity would contribute sustainable development in the region in following aspects, which has been confirmed by site visit:

SDG 7: Providing clean and renewable energy source and displacing the power generation of fossil fuel power plants, reducing pollution emissions caused by coal burning significantly, thus mitigating the air pollution and its adverse impacts on human health, promoting sustainable economic development in local area;

SDG 8: Providing direct and indirect employment opportunities during construction and operation period, which promotes sustained, inclusive and sustainable economic growth, full and productive employment and decent work for local residents.

SDG 13: Reducing greenhouse gas emissions compared to a business-as-usual scenario.

8. Project ownership

The ownership of the emission reductions will belong to the project owner as confirmed through the FSR Approval, EIA Approval and Business licence.

In conclusion, it is confirmed that the PD is accurate, complete, and provides an understanding of the nature of nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

According to the Environmental Impact Assessment (EIA) summary and conclusion and the VCS-PD, there is no potential negative environmental and socio-economic impact of the Project. It is confirmed that wind power is green power and the impact caused by wind power on the surrounding ecosystem and residents, water, and atmosphere etc. is very little, and there would be no net harm caused due to the project activity. Also, the EIA of the project are approved by the local government. CCSC confirmed it by verifying the registered CDM-PDD and the relevant validation report and the follow-up interview.

3.2.2 Local Stakeholder Consultation

By checking the relevant evidence including questionnaires and the VCS-PD, local stakeholders were invited to provide comments on 13/12/2008. The processes by which comments from local stakeholders have been invited and compiled, has been described within the VCS-PD. Furthermore, representatives from the local community were interviewed, the relevant evidences were presented to CCSC for assessment.

Ongoing communications with Local stakeholders was being carried out by the project owner. The project owner published the contact information of the contact person who is responsible for stakeholders comments. Stakeholders were informed of the contact information, and their comments can be directly collected by the contact person. The comments would be fed back to the stakeholders by the contact person for a timely response. By checking the feedback records and confirmed with stakeholders through onsite interview, it is confirmed that no negative comments were received for the project.

In general, the interviewees show adequate understanding of the nature of the Project and agreed that the Project would benefit the environment, society and economic development. The response is overall supportive.

3.2.3 Environmental Impact

The environmental impacts of the Project were sufficiently assessed by means of an Environmental Impact Assessment (EIA) Study which has been approved by the Environmental Protection Bureau of Shandong Province on 28/11/2008 before VCS registration.

Hence, the validation team is able to confirm that the EIA has been conducted in accordance with the relevant Chinese Environmental Regulations and the environmental impact of the Project is insignificant.

3.2.4 Public Comments

No public comment was received.

3.2.5 AFOLU-Specific Safeguards

The project is not an AFOLU-Specific project.

3.3 Application of Methodology

3.3.1 Title and Reference

The VCS-approved methodology applied to the Project is the approved consolidated CDM baseline and monitoring methodology ACM0002 version 20.0 “Grid-connected electricity generation from renewable sources” /5/.

The methodology also refers to:

- Tool-07 “Tool to calculate the emission factor for an electricity system” (Version 07.0),
- Tool-11 “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).

More information concerning the above methodology and tools can be referred to:

<https://cdm.unfccc.int/methodologies/PAmethodologies/approved>.

3.3.2 Applicability

CCSC has checked the definitions of ACM0002 version 20.0 of the applicability of this methodology, and confirmed the comparison in the following table, which explains the reason why the methodology applies to the Project:

Table 3 the project applicability

ACM0002 version 20.0	Explanation	Validation Opinion
<p>This methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <p>(a) Install a Greenfield power plant;</p> <p>(b) Involve a capacity addition to (an) existing plant(s);</p> <p>(c) Involve a retrofit of (an) existing operating plants/units;</p> <p>(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or</p> <p>(e) Involve a replacement of (an) existing plant(s)/unit(s).</p>	<p>The project is a greenfield grid-connected zero-emission renewable power generation activity from wind source.</p>	<p>By site visit and checking FSR and project approval, it is able to confirm the Project involves the installation of a Greenfield project.</p>
<p>The methodology is applicable under the following conditions:</p> <p>(a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</p>	<p>The project is a greenfield grid-connected zero-emission renewable power generation activity from wind source.</p>	<p>By site visit and checking FSR and project approval, it is able to confirm the Project is a greenfield grid-connected zero-emission renewable power generation.</p>

<p>(b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.</p>		
<p>In case of hydro power plants, one of the following conditions shall apply:</p> <p>(a) the project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or</p> <p>(b) the project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m²; or</p> <p>(c) the project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m²; or</p> <p>(d) the project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m², all of the following conditions shall apply:</p> <p style="margin-left: 20px;">a) The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m²;</p> <p style="margin-left: 20px;">b) Water flow between reservoirs is not used by any other</p>	<p>Not applicable. the project is a wind power project, not hydro power plant.</p>	<p>Not applicable as the project is a wind power project.</p>

<p>hydropower unit which is not a part of the project activity;</p> <p>c) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be:</p> <p>i. Lower than or equal to 15 MW; and</p> <p>ii. Less than 10 per cent of the total installed capacity of integrated</p> <p>hydro power project.</p>		
<p>In the case of integrated hydro power projects, project proponent shall:</p> <p>(a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or</p> <p>Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.</p>	<p>Not applicable. the project is a wind power project, not an integrated hydro power project.</p>	<p>Not applicable as the project is a wind power project.</p>
<p>The methodology is not applicable to:</p> <p>(a) Project activities that involve switching from fossil fuels to renewable</p>	<p>The project is not an activity that involves switching from fossil</p>	<p>By site visit and checking FSR, it is able to confirm the Project</p>

<p>energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;</p> <p>(b) Biomass fired power plants/units.</p>	<p>fuels to renewable energy at the proposed project site or biomass fired power plants/units.</p>	<p>is not an activity that involves switching from fossil fuels to renewable energy at the project site or biomass fired power plants/units.</p>
<p>In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.</p>	<p>N/A</p>	<p>N/A</p>

Also, the applicable of tools used for the project activity are justified in the PD, validation team find the correctness of the applicable:

Tool 07

<p>This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).</p>	<p>Applicable. the project generates electricity to national grid. This tool is used to calculate the OM, BM and CM.</p>	<p>Applicable as the project generates electricity to national grid.</p>
<p>Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in</p>	<p>Since the project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.</p>	<p>Applicable as the project is a grid connected project.</p>

<p>“Appendix 1: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.</p>		
<p>In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.</p>	<p>The project is not located in annex I country.</p>	<p>N/A as the project is not located in annex I country.</p>
<p>Under this tool, the value applied to the CO₂ emission factor of biofuels is zero.</p>	<p>The project is a wind power project and does not involve emissions from biofuels.</p>	<p>N/A as the project is a wind power project and does not involve emissions from biofuels.</p>

The Tool-11 is applicable as the baseline in the PD is at the renewal of the crediting period. The baseline is assessed by the procedure of this tool.

It can be concluded from the above analysis that the Project complies with the applicability requirement of the methodology ACM0002 version 20.0.

3.3.3 Project Boundary

According to y ACM0002 version 20.0, spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the VCS project power plant is connected with. The project activity is connected to the North China Power Grid. Therefore, the spatial extent of the Project boundary also includes all the power plants physically connected into the North China Power Grid.

Overall, the project proponents provided an accurate description of the project boundary, which complies with the methodology. The sources and GHG gas involved in the project are demonstrated as per the methodology.

3.3.4 Baseline Scenario

The validation team confirms that according to the methodology, the baseline scenario is provision of the equivalent amount of electricity generated by North China Power Grid connected power plants and 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”.

The PD adopts the Methodological Tool “Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period” (version 03.0.1), to assess the continued validity of the baseline and to update the baseline.

Step 1: Assess the validity of the current baseline for the next crediting period

As demonstrated in the registered CDM-PDD, the baseline scenario for 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. As per the methodology ACM0002 version 20.0, the baseline for the project activity remains the same as that in the registered CDM-PDD.

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

CCSC confirm that 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.

Step 1.2: Assess the impact of circumstances

CCSC confirm that there are no new relevant national and/or sectoral policies and/or circumstances in the electricity sector applicable to the Project Activity, in comparison to the time of the submission of the project activity for validation, which could impact the validity of the current baseline for the next crediting period. Therefore, the current baseline scenario does not need to be updated for the second crediting period.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) is technically possible

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

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

CCSC confirm that the data and parameters have been updated according to the methodological tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of a crediting period”.

The values of W_{OM} and W_{BM} are revised at the renewal of the crediting period, the values used for the calculation of $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are updated in the second crediting period.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

The baseline emissions for the second crediting period have been updated, without reassessing the baseline scenario, based on the latest approved version of the methodology ACM0002 version 20.0.

Step 2.2: Update the data and parameters

Considering the changes on circumstances related to calculation of CO₂ emission factor, the baseline emissions were reviewed in this second crediting period following the latest version of the “Tool to calculate the emission factor for an electricity system”, which has been confirmed by CCSC.

3.3.5 Additionality

According to the Verified Carbon Standard (VCS) Version 4.3 a reassessment of additionality is not required when renewing the project crediting period.

CCSC confirm that 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 project additionality.

3.3.6 Quantification of GHG Emission Reductions and Removals

As per baseline methodology ACM0002 version 20.0, the emission reductions are the difference between baseline emissions and project emissions and leakage.

Baseline Emissions

The calculation of the baseline emissions followed the procedures described in the methodology ACM0002 version 20.0. Baseline emissions are the product of the grid emission factor ($EF_{grid,CM,y}$ in tCO₂/MWh) times the net electricity supplied by the proposed project to the grid ($EG_{facility,y}$ in MWh).

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 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 CO₂ emissions per unit net electricity generation (tCO₂/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”.

Because (1) the net electricity generation and a CO₂ 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 CO₂ 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 0.9419 tCO₂/MWh, which is in line with the latest version of 2019 Baseline Emission Factors for Regional Power Grids in China. The sources and calculation have been verified by CCSC.

Build Margin (BM). BM emission factor was calculated with Option 1 of “Tool to calculate the emission factor for an electricity system” 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 China Northwest Power Grid 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 2016-2018, $EF_{grid, BM, y}$ is calculated to be 0.4819 tCO₂/MWh, which is in line with the 2019 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”. The weighting is set to be 0.75 and 0.25 for OM and BM emission factors respectively for wind power generation. For this project, the combined baseline emission factor will remain fixed during the second crediting period, via

$$EF_{grid, CM, y} = EF_{grid, OM, y} \times \omega_{OM} + EF_{grid, BM, y} \times \omega_{BM} = 0.9419 \times 0.75 + 0.4819 \times 0.25 = 0.8269 \text{ tCO}_2/\text{MWh}.$$

As validated above, the CM emission factor of the project is 0.8269 tCO₂/MWh. The estimated annual electricity supplied to the North China Power Grid by the project is 100,263 MWh. Thus, according to the methodology the annual baseline emissions in the second crediting period are calculated as:

$$BE_y = EF_{grid, CM, y} \times EG_y = 0.8269 \times 100,263 = 82,907 \text{ tCO}_2\text{e}.$$

Project Emissions

As a wind power plant, there are no project emissions according to the methodology. The validation team regards this consideration is correct and in line with methodology.

Leakage

The project does not need to consider leakage. The validation team regards this consideration is correct and in line with methodology.

Emission Reductions

According to the methodology, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y	Emission reductions in year y (tCO ₂ e/yr)
BE_y	Baseline emissions in year y (tCO ₂ e/yr)
PE_y	Project emissions in year y (tCO ₂ e/yr)

Hence, for this project, the estimated average annual emission reductions of 82,907 tCO₂e, resulting in estimated amount of GHG emission reductions (ER_y) is 829,070 tCO₂e during the 2nd

crediting period (17/10/2020 to 16/10/2030).

CCSC has checked the Emission Reduction calculation sheet and found correct and transparent and confirmed,

- All assumptions and data used by the project participants are listed in the PD, including their references and sources;
- All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PD;
- All values used in the PD are considered reasonable in the context of the proposed project activity;
- The baseline methodology ACM0002 version 20.0 and Tool-07 has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PD.

3.3.7 Methodology Deviations

No methodology deviation exists.

3.3.8 Monitoring Plan

The VCS PD applies the approved consolidated monitoring methodology ACM0002 version 20.0. CCSC confirmed that the selected monitoring methodology is applicable to the Project and is materially the same as the registered CDM-PDD for the 1st crediting period.

Data and Parameters Monitored

- $EG_{\text{facility},y}$, Net electricity supplied by the project activity to the grid in year y

$EG_{\text{facility},y}$ is the difference between the exported electricity and imported electricity of the project. Both the electricity exported to the grid by the project and the power imported from the grid will be monitored continuously through the two-way metering equipment (gateway meter M) at the project site. The meter M measuring net electricity supply will maintain accuracy 0.5. Meanwhile, a backup line will be connected for the emergency. A backup-line meter (m) with the accuracy of 1.0 will be installed to measure the electricity imported through the backup line.

CCSC confirms that the monitoring plan contains all necessary parameters, and they are clearly described, and the monitoring plan complies with the requirements of the methodology.

Implementation of the Monitoring Plan

The quality assurance and quality control procedure has been clearly described in the revised VCS-PD. This includes description of the responsibilities, monitoring data, meters precision, meters calibration frequency, data management system, QA/QC procedure, training and emergency procedures. And it is same with the one in the registered VCS-PD.

The validation team considers that the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the Project can be reported ex post and verified.

CCSC hereby confirms that the monitoring plan complies with the requirements of the methodology including applicable tool(s), the monitoring arrangements described in the monitoring plan are feasible within the initial seven instances design and the project owners are able to implement the described monitoring plan.

3.4 Non-Permanence Risk Analysis

As the Project is not an AFOLU project, the project activity does not require a non-permanence risk analysis.

4 VALIDATION CONCLUSION

CCSC has performed the validation of “Guohua Rongcheng Phase III Wind Farm Project”, which applied the methodology y ACM0002 version 20.0. The validation was performed on the basis of VCS Standard Version 4.3 and host country criteria and also on the criteria given to provide for consistent Project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interview with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Through detailed analysis of the Project, it is concluded that the Project is likely to result in reductions of GHG emissions. The “Combined tool to identify the baseline scenario and demonstrate additionality” has been applied to identify the Project’s baseline scenario and demonstrate the additionality. Emission reductions attributable to the Project are hence additional to any that would occur in the absence of the Project.

The validation covered all project components and issues that need to be validated as a VCS project. In our opinion, CCSC hereby confirms that the Project correctly applied the baseline and monitoring methodology y ACM0002 version 20.0 and meets the relevant VCS requirements for registration.

CCSC hereby requests the registration of the Project. Provided that the project is implemented and maintained as designed, the Project is expected to achieve annual average emission reduction of 82,907tCO_{2e} within the crediting period.

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
BM	Build Margin
CAR	Corrective Action Request
CCER	China Certified Emission Rrductions
CCSC	China Classification Society Certification Co. Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DOE	Designated Operation Entity
DNA	Designated National Authority
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG(s)	Greenhouse gas(es)
GS	Golden Standard
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Return Rate
MEE	Ministry of Ecology and Environment of the People's Republic of China
MP	Monitoring Plan

NDRC	National Development and Reform Commite
NCPG	North China Power Grid
OM	Operating Margin
PD	Project Description
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Voluntary Carbon Unit
VVB	Validation / Verification Body

APPENDIX B: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

CCS 认证公司
CHINA CERTIFICATION SERVICE

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2022

Mr. Li Xingtong

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/TA3.1/TA9.2/TA13.1/TA14.1
- CDM verifier for Technical Area(s): TA1.1/TA1.2/TA3.1/TA9.2/TA13.1/TA14.1
- Technical expert for Technical Area(s): _____



Li Honglin
CCSC General Manager

CCS 认证公司
CHINA CERTIFICATION SERVICE

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2022

Ms. Zheng Ying

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/TA13.1
- CDM verifier for Technical Area(s): TA1.2/TA13.1
- Technical expert for Technical Area(s): _____



Li Honglin
CCSC General Manager

APPENDIX C: DOCUMENTS REVISED OR REFERENCED

No.	Author	Title	References to the document	Provider
/1/	Guohua Energy Investment Co., Ltd.	VCS-PD sent to CCSC for validation	Version 01 02/07/2022	PP
/2/	Guohua Energy Investment Co., Ltd.	Final VCS-PD to request registration	Version 02 10/09/2022	PP
/3/	Guohua Energy Investment Co., Ltd.	Emission Reductions Calculation Spreadsheet	Version 02 10/09/2022	PP
/4/	MEE	2019 Baseline Emission Factors for Regional Power Grids in China	http://www.mee.gov.cn/ywgz/ydqhbh/wsqtzk/202012/t20201229_815386.shtml	Others
/5/	CDM-EB	Methodology ACM0002 version 20.0	https://cdm.unfccc.int/methodologies/PAmethodologies/approved	Others
/6/	CDM-EB	Relevant Tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 3.0.1	https://cdm.unfccc.int/Reference/tools/index.html	Others
/7/	CDM-EB	Relevant Tool: Tool to calculate the emission factor for an electricity system, version 7.0	https://cdm.unfccc.int/Reference/tools/index.html	Others
/8/	Verra	VCS standard	Version 4.3 Dated 22/06/2022	Others
/9/	Verra	VCS Project Description template	Version 4.1 Dated 20/01/2022	Others

APPENDIX D: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Draft report clarifications and corrective action requests by validation team	Summary of project participant response	Validation team conclusion
<p>CL-1: VCS-Project-Description-Template V4.1 requires that “Demonstrate and justify how the project activity(s) meets each of the applicability conditions of the methodology(s), and tools (where applicable) applied by the project. Address each applicability condition separately.” As per this requirement, each applicability condition of the applied methodology and tools shall be justified separately.</p>	<p>VCS-PD has been revised and each applicability condition of the applied methodology and tools shall be justified separately.</p>	<p>CCSC has validated the revised PD and can confirm that each applicability condition of the applied methodology and tools shall be justified separately.</p> <p>This CL is closed.</p>
<p>CAR-1: the annual emission reductions shall be round down for conservativeness.</p>	<p>The annual emission reductions have been round down for conservativeness.</p>	<p>CCSC confirms that this is conservative.</p> <p>This CAR is closed.</p>