

GS4GG Validation (Design Certification) Report



Project Title

West Huaybong 3 wind farm project

For
First Korat Wind Company Limited

Report No.
GS.VAL.20.21

Executive Summary:


A) Basic information			
Title of project activity	West Huaybong 3 wind farm project		
GS project ID	7746		
Host County	Thailand		
Project Participants (PPs)	First Korat Wind Company Limited.		
Scale of project	Large		
Sectoral scope (UNFCCC)	1		
GS4GG Sectoral Scope:	2		
GS4GG Activity Requirements:	RE Activity Requirements		
Certification Pathway	Impact statements & products		
GS4GG version	GS4GG v 1.2		
Technical Area	1.2		
Applied methodology/ies	ACM0002, version 20.0: "Grid-connected electricity generation from renewable sources"		
Type of crediting period	Renewable		
Length of crediting period	7 years		
Estimated Annual Emission Reductions:	132,339 tCO ₂ e/year		
Selected Sustainable Development Goals (SDGs):	3,7, 8,13		
B) Documents versions			
	Version	Date	
First	02	01/06/2020	
Final	054	15/052/2021	
C) Validation Report			
	Version	Date	
Draft	01	01/03/2021	
Final	043	245/053/2021	
D) Validation Team			
Team Leader	Ravi Kant Soni		
Validator & GS4GG Auditor	Anshika Gupta		
Technical Expert (TA 1.2)	Ravi Kant Soni		
Local Expert	Pitipoom Tungsiriteekul		
Financial Expert, if any	NA		
E) Technical Review / Approval			
Technical Reviewer	Shreya Garg	Date	25/05/202116/03/2021
Technical Expert (TA 1.2)	Shreya Garg		
F) Authorization			
Name, position and signature of the approver	Dr. Kaviraj Singh Managing Director Sign: 		
Date	25/05/2021		

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1. Design Certification Summary

Earthhood Services Private Limited (ESPL) has been contracted by First Korat Wind Company Limited to perform GS CER validation of the proposed CDM registered project activity entitled “West Huaybong 3 wind farm project” (UNFCCC ref. No-7474). The project proponent has applied the baseline and monitoring methodology ACM0002: Grid-connected electricity generation from renewable sources – Version 20.0.

The Validation was performed in accordance with the GS4GG and UNFCCC criteria for the Clean Development Mechanism Validation and Verification Standard for project activity (Version 02.0) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification is consisted of three phases:

- 4) Desk review of the project;
- ii) Follow-up onsite visit and interviews with project stakeholders;
- iii) Resolution of outstanding issues and the issuance of the final verification report and opinion.

The overall validation, from Contract Review to Validation Report & Opinion, was conducted following ESPL internal quality procedures.

During the validation process 02 CARs, 01 CL and 01 FAR was raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix 4.

Validation scope includes an independent and objective review of the project design document, against the GS4GG requirements, against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. The validation report is finalized based on the assessment of the Gold Standard GS PDD and applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

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.

As a summary of the validation, the review of the Gold Standard GS PDD and the subsequent follow-up interviews have provided ESPL with sufficient evidence for the determination of the project's fulfillment with all stated criteria.

In our opinion, the project meets all relevant GS4GG, CDM criteria and all relevant host country criteria. The project correctly applies methodology ACM0002 version 20.0 “Grid-connected electricity generation from renewable sources”. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 926,373 tCO₂e over a 7-year crediting period, averaging 132,339 tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

2. Introduction

Objective:

Earthood Services Private Limited (ESPL) has been contracted by First Korat Wind Company Limited to perform a validation of the proposed CDM project activity entitled “West Huaybong 3 wind farm project” in Thailand (hereafter called project). This project has already been registered as a CDM project (UNFCCC reference number 7474).

The objective of this validation is a thorough and independent assessment of GS project activities against the applicable GS4GG requirement by the DOE. The validation process shall determine whether the proposed project activity complies with the requirements of paragraph 37 of the CDM & GS4GG criteria, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the GS registry. The GS validation seeks premium quality carbon credits, by ensuring that CDM meets the additional requirements set out by GS and the project result in real and measurable benefits to local stakeholders.

Scope

The scope of validation is to assess the claims and assumptions made in the project design document (PDD) against the Gold Standard GS4GG requirement & CDM criteria, including but not limited to, GS4GG, CDM PS for Pas, and CDM VVS for Pas version 02.0, applied methodology and other relevant rules and requirements established for GS project activities.

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

3. Description of project

The project activity is an installation of 103.5 MW wind power generation project and the power is being exported to the Thailand national grid. The project activity involves installation of 45 numbers of SWT-2.3-101 type 2.3 rated Wind Energy Generators (WEGs) within Tambol Huaybong of Amphur Dan Khun Thot and Tambol Nong Wang of Amphur Teparak, of Nakhon Ratchasima Province in Thailand.

The power generated from the project is directly fed to the national grid thereby replacing an equivalent amount of fossil fuel-based power generation. Therefore, the project activity results in an equivalent amount of CO₂ emission reduction which otherwise would have resulted from fossil fuel combustion at the power grid.

4. Methodology

ESPL assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the GS4GG criteria and relevant guidance provided by the GS registry. The validation process consists of the following three phases;

- A desk review of the GS PDD
- Follow up interviews(telephonic) with project stakeholders
- The resolution of outstanding issues and issuance of final validation report and opinion.

4.1 Desk review

The validation is performed primarily as a document review of the GS PDD and associated documents as stated in details in Appendix-3 of this document. The assessment is performed by a validation team using a validation protocol. The cross checks between information provided in the PDD and information from sources other than those used, if available, the validation team’s sectoral or local expertise and, if necessary, independent background investigations.

4.2 Follow up interview with project stakeholders

ESPL as a part of validation procedure conducted a comprehensive interaction with stakeholders. It was done during the remote audit on 15/02/2021~~24/07/2020~~. It included interaction with the, representatives of PP and consultant.

Sr.No-	Name	Affiliation	Date	Subject
1	Narendra Kumar	Kosher Climate India Pvt. Ltd (Consultant)	15/02/2021	Monitoring of SDG parameters, Local employment, trainings, Monitoring of SDG parameters
2	Kelly Dallas	First Korat Wind Company Limited		Project implementation, Grievance and feedback back register/mechanism Monitoring of SDG parameters

4.3 Onsite visit

No site visit was conducted for this verification due to outbreak of global pandemic Covid-19 and increased risk of exposure and contraction due to travel. However, following section-4 of the GS4GG's Rule Update- "COVID-19: INTERIM MEASURES"/28/, the assessment team opted and applied the alternative means of conducting the remote audit.

Alternative means used by VVB:

- Telephonic interviews (via audio calls) with consultant and the project developer to discuss the overall operational aspects. The projects are already registered under CDM; hence project implementation is also verified through the CDM validation reports available publically at UNFCCC project webpage.
- Safeguarding principal assessment is validated through the IEE report prepared by third party, company EHS policy, HR Policy and CSR policy document submitted by the PD.
- Photographic evidence for the project activity site, where tags are captured along with the monitoring equipment.
- Review of documentary evidence and supporting documents including technical specifications of project equipment's, JMRS/Invoices, PPA signed with Government entity, commissioning certificates of WTGs, calibration reports of energy meters. The entire list of documents reviewed for purpose of verification is available in Appendix 3 of this report.
- Training records, employment record, grievance register, annual HSE annual report is reviewed for SDG monitoring and mitigation measures described for relevant safeguarding principals.

The alternative methods as discussed above were considered sufficient by the validation team for the scope of

- i. ~~The alternative means used by DOE for the purpose of validation of project details are listed below:~~
- ii. ~~Telephonic interviews (via audio calls) with the consultant and the project developer to discuss the overall operational aspects.~~
- iii. ~~Interviews with the PP representatives (consultant) to discuss the implementation of project activity and monitoring procedures for SDG parameters.~~
- iv. ~~Review of documentary evidence and supporting documents including technical specifications of project equipment's, PAA, commissioning certificates of WTGs. The entire list of documents reviewed for purpose of verification is available in Appendix 3 of this report.~~

The validation. The assessment involved a desk review of relevant documentation. The personnel employed and their role in this assessment is mentioned below;

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	Interviews	Validation findings
1.	Team Leader	EI	Soni	Ravi Kant	Central office	Y	N	Y	Y
2.	Validator & GS4GG Auditor	IR	Gupta	Anshika	Central office	Y	N	N	Y
3.	Technical Expert and Meth Expert	EI	Soni	Ravi Kant	Central office	Y	N	Y	Y
4.	Local Expert	EI	Tungsirisuteekul	Pitipoom	Central office	Y	N	Y	Y

The CV of validation team members is included under Appendix-2.

4.4 Reporting of findings

As an outcome of the validation process, the validation team can raise different types of findings:

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises, the validator shall raise a Corrective Action Request (CAR). A CAR is issued, where:

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

Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in a separate finding document (Appendix- 4). In this document, the project participant is given the opportunity to “resolve” the outstanding CARs and respond to CLs and FARs.

4.5 Technical review

A draft validation report that is prepared by validation team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable GS4GG and CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation team.

During the technical review process additional findings may be identified or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for registration is submitted to Gold Standard Board. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the validation team. The decision taken by the Technical Reviewer is final and is authorized by the Managing Director on behalf of Earthood Services Private Limited.

5. Assessment of Design Certification (Validation):

5.1 Project Approval

The Approval is provided by the Thailand Greenhouse Gas Management Organization which serves as the DNA. Assessment team checked the HCA supplied by the project participant and also cross checked the same from the UNFCCC web site:

(<https://cdm.unfccc.int/Projects/DB/RWTUV1348727249.16/view?cp=1>)

The project participant is First Korat Wind Company Limited from Thailand, and is a private entity. The project participant is correctly listed in table under section A.4 of the PDD and information is consistent with the contact details provided in Appendix 1 of the PDD.

The DNA of Thailand issued a Letter of Approval on 05/04/2012, approving participation of M/s. First Korat Wind Company Limited as a project participant and confirming that the project assists in achieving sustainable development in Thailand.

5.2 Scale of the project

The project activity is identified as a large-scale project in section A.6 applying a large-scale methodology ACM0002 version 20.0. The installed capacity of the project is 103.5 MW that is exceeding the threshold capacity under small-scale project activity (15MW). Thus, the project is correctly identified as large-scale project activity.

5.3 Host Country or State

The project is a bilateral project and hence the host country (Thailand) and France are the party involved in the project activity. The letter of approval from Annex I country is issued by the DNA of France, i. e. the General Directorate for Energy and Climate Change of the Ministry of Ecology, Sustainable Development and Energy.

5.4 Type of project

The project activity involves electricity generation using wind power to reduce atmospheric CO₂ emission by replacing equivalent amount of electricity from the grid of Thailand. The project type is identified as renewable energy project in section A.6 of the GS PDD. The project activity complies with the requirement of 'the generation and delivery of energy services (e.g., electricity) from non-fossil and non-deployable energy sources' as defined in GS4GG v1.2. The project activity generates and supplies renewable electricity to the regional grid thereby displacing the electricity which would have generated in fossil fuel-based power plants connected to the grid.

5.5 Greenhouse Gases

The project activity involves the generation of electricity using solar energy. Hence, there are no project emissions associated with this project activity. The PP has considered only CO₂ gas for the baseline emissions is conservative and also in line with the methodology. The exclusion of CH₄ & N₂O in the baseline scenario is appropriate.

5.6 Official Development Assistant (ODA)

The project activity neither received any public funding from Annex 1 parties nor diverted ODA for project finance as mentioned in section A.5 of the PDD/01/. This has been confirmed from the CDM Validation report documents/03/ that clearly indicates debt and equity portion for the project activity.

Further, the PP has provided declaration for no ODA/12/. This is found to be appropriate and it is accepted.

5.7 Project timeframe

Other certification schemes:

1. Project activity is registered under CDM Programme (UNFCCC ref. No-7474), this verified through <https://cdm.unfccc.int/Projects/DB/RWTUV1348727249.16/view?cp=1> . The project activity has not applied, confirmed by project developer, for any other certification like Green or White certification. This is verified through the double counting clarification vide GS guideline on double counting in the context of Green Certificate Schemes, 22/01/2015.
2. The project is not registered under international REC Mechanism e.g. I-REC Device Registry and the same is confirmed through the i-REC web site (<https://v-1.evident.app/Public/ReportDevices/>)

The project activity is registered under CDM and the validation was conducted for GS CER validation of the proposed CDM project activity. The project participant has submitted the declaration/12.1/ stating that both the CERs and GS VERs for the same vintage will not be claimed from the project activity. Therefore, the assessment team is able to confirm that the project activity meets the criteria as outlined under section 1.1.3 of 'Requirements for Projects to Transition from Other Schemes to GS4GG.

5.8 Project boundary

As per the guidelines mentioned in the methodology ACM0002, version 20.0, "*The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to*". The project activity will supply electricity to the National Grid. The project boundary includes the solar plant, the metering points and the grid, which has been illustrated in the Section B.3 of the GS PDD and gives clear understanding of the project boundary; thus, it is acceptable. The same has been confirmed during the site visit and is found to be appropriate.

The project boundary gives a clear understanding of emission sources related to the baseline scenario. There are no sources attributable to project emissions or leakage emissions, which can contribute more than 1% of overall expected annual emission reductions, and which are not addressed by the applied methodology, involved, as the project activity is electricity generation through solar power. No leakage emissions involved as equipment's were not transferred from another activity or to another activity.

The project boundary in section B.3 of the GS PDD properly explains the physical description of the project activity. Also, it is found that all the components and facilities to mitigate GHG gases are included in the project boundary.

5.9 Baseline identification

The project activity involves the installation of a Greenfield grid-connected wind power plant that exports the generated electricity to the national grid system in Thailand, hence, according to the methodology ACM0002 Version 20.0, the baseline scenario is determined properly 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".

The approved methodology that is applied prescribes the baseline scenario, and the same has been opted in this project, therefore, no further analysis on baseline is required.

5.10 Eligibility Principles Assessment

Principle 1. Contribution to Climate Security & Sustainable Development

The project activity applies the approved consolidated baseline and monitoring methodology ACM0002, "Grid-connected electricity generation from renewable sources" version 20.0/11/. The applicability of the methodology and tools referred by the methodology is justified under section D.4.1 of the CDM validation report/03/.

The project activity got approval from Thailand Greenhouse Gas Management Organization which serves as the DNA, that clearly indicates that the project supports the country in achieving sustainability targets. Thus, the project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

Principle 2: Safeguarding Principles

SOCIAL SAFEGUARDING PRINCIPLES					
Safeguarding principle	Sub-principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
1. Human Rights		<p>a. The Project Proponent and the Project shall respect Internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights.</p> <p>b. The Project shall not discriminate with regards to participation and inclusion.</p>	No	The project activity is not expected to cause any human rights abuse. As a member of United Nations ¹ and part of UN Agreement on Human Rights, it is ensured by law in Thailand that no action can be taken against human rights. As Thailand is Signatory to International Human right under UN resolution and the Company is abide by the law and regulation of the Host country, assessment team confirm that project do not discriminate with regards to participation and inclusion	Not Required.
2. Gender Equality & Women's Rights		<p>1. The Project shall complete the following gender assessment questions in order to inform Requirements, below:</p> <p>a. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits?</p>	No	Assessment team checked the HR policy and confirmed that men-women have equal participation and equal pay is given for equal work. Projects do not affect men and women in marginalized or vulnerable communities. Both men and women are employed as per the Skill level and requirement of the Organization. Local Men and women who are uneducated are provided unskilled job during the	Not Required

¹ <http://www.thaiembassy.org/unmissionnewyork/en/relation/80917-Human-Rights.html>

	<p>b. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?</p> <p>c. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?</p> <p>d. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?</p> <p>e. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?</p> <p>f. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance,</p>	<p>construction as well as operation phase of the project which generated employment opportunity for the local people. The Project design do not increase women work load however on contrary generated employment opportunity for them. The project has Women cell in case of any Sexual harassment case is noticed and the same is resolved on priority basis. Moreover, since the project generated employment for women it improves their overall life of the family as well. The project does not discriminate the local community on basis of gender or caste or religion and therefore equally serve to all.</p> <p>The project developer does not involve in any form of discrimination in any kind.</p> <p>Thailand has ratified 15 ILO Conventions, one of which is the core convention related to gender inequality (C100 on equal remuneration)².</p> <p>To further eliminate gender-based discrimination, Thailand had passed the Gender Equality Act of 2015³, the first anti-discrimination law which protected not only women but also people with different sexual expressions; criminalized marital rape; and adopted the law on domestic violence and the amendment to the anti-trafficking in persons act. The Department of</p>	
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² [Convention C100 - Equal Remuneration Convention, 1951 \(No. 100\) \(ilo.org\)](http://www.ilo.org)

³ <https://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=21846&LangID=E#:~:text=To%20further%20eliminate%20gender%2Dbased,the%20amendment%20to%20the%20anti%2D>

	<p>regarding their full participation in design and implementation or access to opportunities and benefits?</p> <p>g. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?</p> <p>h. Is there likelihood that the proposed Project would expose women and girls to further risks or hazards?</p> <p>2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women.</p> <p>a. Sexual harassment and/or any forms of violence against women - address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.</p> <p>b. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.</p> <p>c. Restriction of women's rights or access to resources (natural or economic).</p> <p>d. Recognise women's ownership rights regardless of marital status - adopt project</p>		<p>Women's Affairs and Family Development had been established under the Ministry of Social Development and Human Security to specifically look after the issues of empowerment of women and gender equality.</p>	
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		<p>measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.</p> <p>3. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically:</p> <p>a. Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.</p> <p>b. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.</p> <p>c. Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.</p> <p>4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.</p>			
3. Community Health,		a. The Project shall avoid community exposure to increased	NO	Assessment team has checked the HSE policy and confirmed that all	Not Required.

<p>Safety & Working Conditions</p>		<p>health risks and shall not adversely affect the health of the workers and the community.</p>		<p>employees undergo training and Safety measure for Occupational Safety, Health and Working Conditions and UN Agreement on Human Rights ⁴ . The Safety equipment's such as Safety boots, Hand Gloves, Helmet etc are provided to all the operational personal and same is practiced and followed onsite by each and every personal working in Shifts. Hence project avoids exposure to increased health risks and shall not adversely affect the health of the workers and the community.</p> <p>The project activity follows the laws which provide for securing the safety, health and welfare of persons at work in all branches of economic activity and for the protection of any other person against risks to safety and health in connection with the activities of persons at work.</p>	
<p>4.Cultural Heritage, Indigenous Peoples, Displacement and Resettlement</p>	<p>4.1 Sites of Cultural and Historical Heritage</p>	<p>a. Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?</p>	<p>NO</p>	<p>Assessment team checked the Initial Environmental Examination (IEE) report/22/ prepared by the 3rd party (Environmental Research Institute, Chulalongkorn University) and IEE report confirms that there are no protected archaeological and cultural heritages sites are reported within the project footprint.</p> <p>The project site is not listed as a cultural heritage site and the same is verified through the list of cultural heritage sites in Thailand by UNESCO http://whc.unesco.org/en/st</p>	<p>Not required.</p>

⁴ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIIndex.aspx>

	<p>4.2 Forced Eviction and Displace ment</p> <p>4.3 Land Tenure and Other Rights</p>	<p>b. Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?</p> <p>c. Does the Project require any change to land tenure arrangements and/or other rights?</p> <p>d. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership?</p>		<p>atesparties/th .</p> <p>Law on Cultural heritage is protected against alteration, damage or removal by the “law on cultural heritage⁵”.</p> <p>As per the chapter 4 of IEE report, the project located in Huaybong Sub-district, Dan Khun Thot District, Nakhon Ratchasima Province, and before the construction period, the Project developer has paid the compensation for the lands to the farmers.</p> <p>As per chapter 4, p10, IEE report, after the installation of the wind turbines has been completed, the Project owner will return the land to the farmers in order for them to plant on the area around the wind turbines as former conditions. However, fast-growing trees, perennial plants and deep-root plants are not allowed to plant around the base of the wind turbine. Additionally, the electrical substation, permanent residence and temporary office building will be constructed on such land. During the operation of the Project, the effect on the land utilization is expected to be low. After the Project has been commenced, the area around the Project is expected to be in a positive development as the area of Huaybong Sub-district, Dan Khun Thot District, Nakhon Ratchasima Province will have more potential to be the tourist attraction of ecological development</p>	
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⁵<https://whc.unesco.org/en/statesparties/th/laws/>

		e. Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?			
5. Corruption	4.4 Indigenous Peoples	a. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	Thailand has ratified UN convention against Corruption on 09/12/2003 ⁶ . All the organization in the host country follows the resolution and moreover, organization follows ethical code of conduct and hence project do not involve or complicit in or inadvertently contribute to or reinforce corruption or corrupt Project.	Not required
ECONOMIC SAFEGUARDING PRINCIPLES					
6. Economic Impact	6.1 Labour Rights	a. The project does not employ and is not complicit in any form of child labour. b. The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work	NO	Assessment team has checked the HR policy and confirmed that the project developer complying with all relevant national laws regarding child labour. The project will not employ children in any shape or form for their works. Thailand has ratified ILO "C138 – Minimum Age Conventions" and "C182 –	Not required

⁶ <https://www.unodc.org/unodc/en/corruption/ratification-status.html>

				wood, biomass) that provides for other local users.	
8. Water	<p>8.1 Impact on Natural Water Patterns/Flows</p> <p>8.2 Erosion and/or Water Body Instability</p>	<p>a. Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?</p> <p>b. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2.</p> <p>c. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?</p>	NO	<p>As per the IEE report (chapter 4, p.3), the project is located in Lam-Chiangkrai river basin, which is originated from the west mountain range and there are several public canals flowing from west to east where the Project area is located, the effect from the construction of the buildings and the installation of the wind turbines, which are not located near flooding area of such public canals, is therefore expected to be low.</p> <p>As per the IEE report project does not cause additional erosion and/or water body instability or disrupt the natural pattern of erosion.</p> <p>After the commencement of the Project operations, the activities of the Project should not affect the water flow direction and water quality. Thus, the effect on the surface water should be low.</p> <p>The Project development in the construction period i.e., area of wind turbines' tower, office buildings, accommodations</p>	<p><u>For sub-principal 8.1: Not required</u></p> <p><u>For sub-principal 8.2: During the construction period stripping of top soil is expected for installation of wind turbine's tower, office buildings, accommodations and electrical substation.</u></p>

			<p>for employees and electrical substation and their foundations do not reach on the rock strata, therefore, it will not affect the underground water and the effect should be low.</p>	<p><u>The project developer will back fill the soil into the same or lower area to minimize effects of the drilling on the ground condition in the Project area.</u></p> <p><u>During the operation period the stripped top soil will be all closed and the surface of the turbine installation area should be planted with vetiver grass which can preserve the ground surface and prevent any effect to soil resource. Not required</u></p>
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<p>9. Environment, Ecology and Land Use</p>	<p>9.1 Landscape Modification and Soil</p> <p>9.2 Vulnerability to Natural Disaster</p> <p>9.3 Genetic Resources</p> <p>9.4 Release of Pollutants</p>	<p>a. Does the Project involve the use of land and soil for production of crops or other products?</p> <p>b. Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or Other extreme climatic conditions?</p> <p>c. Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?</p> <p>d. Could the Project potentially result in the release of pollutants to the environment?</p> <p>e. Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?</p> <p>f. Will the Project involve the application of pesticides and/or fertilisers?</p> <p>g. Will the Project involve the harvesting of forests?</p>	<p>NO</p>	<p>a. As per the chapter 4 section 4.2.1, p.9 of the IEE report. the area around the wind turbines' base should be planted with vetiver grass which can preserve the ground surface and prevent the soil from being collapse. Moreover, the green area should be increased by planting the bush and having attractive gardening. This is to improve the landscape of the Project area.</p> <p>b. The project is wind power project and is not susceptible to or leads to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding, and drought.</p> <p>c. Point c is not applicable for the project.</p> <p>d. The project is wind power project and hence there is no question of release of pollutants to the environment.</p> <p>e. The project is wind power project and hence there is no question of manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials</p> <p>f. The project is wind power project</p>	<p>Not required</p>
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	<p>9.5 Hazardous and Non-hazardous Waste</p> <p>9.6 Pesticides & Fertilizer's</p> <p>9.7 Harvesting of Forests</p> <p>9.8 Food</p> <p>9. Animal Husbandry</p> <p>9.10 High Conservation</p>	<p>h. Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?</p> <p>i. Will the Project involve animal husbandry?</p> <p>j. Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites [11] identified?</p>	<p>and project does not involve the use of Fertilizer.</p> <p>g. In the project area, there is no overlapping land interloped into the national reserved forest and national park. Therefore, the effect on forest resources due to the Project development is expected to be very low. The activities in the period of construction should affect only on the agriculture area which is a very small area comparing to the total agriculture area in Dan Khun Thot District.</p> <p>h. The project does not modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives. Upon the Project development before the construction period, the Project owner has duly signed the Memorandum of Consent for the right to use the land and entered into the agreement to pay the compensation to the owner of the land.</p> <p>(IEE report, section 4.2 p.9).</p> <p>i. In the Project</p>	<p><u>For sub-principal 9.5:</u></p> <p><u>The project developer will implement waste management plan for all waste special waste storage areas and receptacles on site and in the office including locked and banded areas waste disposal by approved contractors and monitor usage of office consumables to target reduction/34/.</u></p> <p><u>The waste management plan will be applicable to the wastes arising during commissioning and operation of the project activity.</u></p>
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	<p>Value Areas and Critical Habitats</p> <p>9.11 Endangered Species</p>	<p>k. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?</p> <p>l. Does the Project potentially impact other areas where endangered species may be present through trans boundary affects?</p>	<p>area, there are small local animals and several kinds of bird. They are capable of good adaptability with high breeding value and the number of populations in nature is high. The condition of the Project area is a flatted area with the roads in and out of the area. Thus, the Project area is not in a good condition for the wildlife to live and the endangered species or valuable animals are not found in the Project area.</p> <p>j. As per the IEE report (chapter 4) project do not affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites.</p> <p>The project area has no characteristic of a forest and/or any remnant of wildlife animals. Moreover, presently, the utilization of the land in the project area is for farming of tapiocas, corns and sugar canes for instance. Besides, part of the project area is left bare and empty without any utilization, therefore, it can be said that most of</p>	
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			<p>the project area as described are bare and empty land or a large part of it used for agricultures purposes which makes it unsuitable for the existence of other living organism and can be assumed that will not be an obstacle toward the species, amount or biological diversity existing on the project area.</p> <p>k & l. As per the IEE report (Chapter 3), there is no overlapping land interloped into the national reserved forest and national park in the project area, hence the project does not hamper the endangered species and also do not fall in the route of any migratory birds.</p>	
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The SDG goals are also described below:

SDG Goal	Assessment of Methodological choices/approaches for estimating the SDG outcome
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<p>SDG 3- Good health and Well being</p>	<p>Measurement Method: - There are various initiatives are undertaken by the Project Developer on a continuous basis to contribute to basic education and health. The initiatives undertaken and programs organized by the Project Developer to facilitate basic education, health, capacity building, empowerment and improvement in quality of life of local stakeholders would be monitored and shall serve as evidence for positive impact of the project activity to this indicator.</p> <p>QA/QC Process: This parameter is based on records, data and no any QA/QC procedure required. The DOE will confirm this parameter with interview with PP and local villagers for the CSR activities undertaken.</p> <p>Relevant SDG Target: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.</p> <p>Corresponding indicator: Ensure healthy lives and promote well-being for all at all ages</p>
<p>SDG 7 –Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>Measurement Method: - Quantity of net electricity supplied to the grid” ($EG_{\text{facility},y}$) will be being calculated on monthly basis as difference of electricity exported to the grid and electricity imported from the grid by the project and those are being measured by energy meters of accuracy class 0.2s located at project. This export and import parameters are measured continuously and at least monthly recording. This is in line with methodology and is accepted.</p> <p>QA/QC Process: The invoicing will be done against electricity supplied by the project plant to the grid. The measurement results shall be cross checked with records of invoices and energy meters will be calibrated once in 2 years line with national standard.</p> <p>Relevant SDG Target: By 2030, increase substantially the share of renewable energy (232,500 MWh per annum) in the global energy mix.</p> <p>Corresponding indicator: Renewable energy share in the total final energy consumption</p>
<p>SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all</p>	<p>Measurement Method: - Training and employment generation is monitored through training records, staff register or letter from O&M contractor for training and employment details or HSE/HR records.</p> <p>QA/QC Process: This parameter is based on records, data and no any QA/QC procedure required. The DOE will confirm this parameter with interview with PP or Site in charge or employees for training and employment generation.</p> <p>Relevant SDG Target: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.</p> <p>(Training: 2 nos annually)</p> <p>Corresponding indicator: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities.</p>

<p>SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts</p>	<p>Measurement Method: - The emission reduction parameter is calculated as product of net electricity supplied to grid and grid emission factor. The grid emission factor is ex-ante parameter and determined based on data obtained from “Thailand Greenhouse Gas Management Organization (TGO), the Designated National Authority (DNA) of Thailand for 2016.</p> <p>This is in line with “Tool to calculate the emission factor for an electricity system, version 7”.</p> <p>The emission reductions are calculated as per the formula provided by the approved methodology ACM0002 version 20.0</p> <p>QA/QC Process: This parameter is calculated, and no any QA/QC procedure required.</p> <p>Relevant SDG Target: Integrate climate change measures into national policies, strategies and planning (132,339 tCO_{2e} per annum) from the project.</p> <p>Corresponding indicator: Emission reductions in tCO_{2e} from the project activity. Number of countries that have communicated establishment or operationalization of an integrated policy/ strategy/ plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)</p>
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Principle 3: Stakeholder Inclusivity

As per the CDM/GS requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. The project is undergoing retroactive GS validation. As per the CDM PDD, the local stakeholder consultation was conducted on 15/09/2011 and the start date of the project is 15/08/2011. The project participant identified the relevant stakeholder like Local village head, villagers, technology suppliers and local vendors as local stakeholders for the project activity. The assessment team has verified the stakeholder meeting records/10/ and confirmed that the identification of stakeholders for consultation was found to be appropriate. Thus, the validation team is of the opinion that the relevant stakeholders have been consulted appropriately and adequately. Identified stakeholders were invited to the Local Stakeholder Consultation Meeting through public notice and personal invitation letters. Also, the PP submitted minutes of meeting of Local Stakeholder Consultation Meeting conducted on 15/09/2011 at site office located at Sima Thani Hotel and attendance sheet of local stakeholder attended the meeting. The summary of comments is checked for negative comments if any for the project activity. It is found that no negative comments were received for the project activity by local villagers.

Stakeholder Feedback Round (SFR):

The project activity is a retroactive project and therefore PP was required to conduct a physical meeting during Stakeholder Feedback Round (SFR) covering the issues highlighted in the pre-feasibility assessment. The project developer had invited the stakeholders, local NGOs for SFR via email dated 06/07/2020 /23/ and as per the GS guidelines, project documents were made available publicly via website⁸ for a minimum of 2 months i.e., from 06/07/2020 to 05/09/2020.

However due to outbreak of global pandemic Covid-19 and increased risk of exposure and contraction due to travel Stakeholder Feedback Round (SFR) is not conducted for the project activity. The project developer has submitted the deviation to GS that is against the requirements of para 6.1.4 of Stakeholder-Consultation-Requirements, v1.2 is applied.

⁸ <https://drive.google.com/file/d/1xQuGsoEgxm5kvTjijyyxKY0W85iJE2jn/view?usp=sharing>

As per the deviation request /31/, the stakeholder feedback round will be conducted after completion of design review. In line with the guidance provided under paragraph 36 of VVS for PAs version 02.0, the assessment team has risen a FAR during the validation and accordingly, during the first verification of the project activity the verifying DoE shall check if the SFR is done.

Principle 4: Demonstration of real outcomes

Sustainable monitoring plan:

SDG Parameter	Indicator	Monitoring
<p>SDG 3: Good health and Well being</p>	<p>Livelihood of the poor</p>	<p>It's a sustainable development parameter which monitors the number of villagers directly or indirectly benefited by the CSR activity initiatives/35/, referring to the project, undertaken by the project proponent.</p> <p>This parameter is monitored on annual basis.</p> <p>On the basis of survey conducted in nearby villages, during construction phase, the PP has identified several scopes of developmental activities with reference to the health and education.</p> <p>Project proponent has initiated the number of CSR programmes pertaining to capacity building, health, education etc.</p>
<p>SDG 7: Affordable and Clean Energy</p>	<p>“Quantity of net electricity supplied to the grid” $(EG_{\text{facility},y})$ in MWh</p>	<p>This parameter will be being calculated on monthly basis as difference of electricity exported to the grid and electricity imported from the grid by the project and those are being measured by energy meters of accuracy class 0.2s located at project. This export and import parameters are measured continuously and at least monthly recording.</p> <p>The invoicing will be done against electricity supplied by the project plant to the grid. The measurement results shall be cross checked with records of invoices and it is in line with applied methodology. Thus, this parameter is considered in emission reduction calculations.</p>

		<p>The monitoring plan also considers sufficient details about the parameters being monitored and takes enough measures for the correct estimation of the same. Therefore, the monitoring plan has complied with the requirements in the approved methodology.</p>
<p>SDG 8: Decent Work and Economic Growth</p>	<ul style="list-style-type: none"> • Number of jobs created • Number of Training conducted 	<p>Project participant have Documentation pertaining to employment, attendance register and documentary details of training/capacity building. The training records are maintained on regular basis with annual consolidation. There is total 40 people are expected to be employed at site during crediting period/35/. The employment opportunities generated are local or temporary or permanent as checked and confirmed by the assessment team.</p> <p>The training related to O&M, Safety, emergency procedure, fire safety etc. are provided to employees/32/. Since local people are employed due to project activity, the training given to employees improves the quality of employment. Apart from these training to employees, the PP organizes few events which will be beneficial to society as a part corporate social responsibility (CSR) activity as per their policy. As the parameter is subjected to monitoring the same will be checked during the verification of the project activity.</p> <p>It will be ensured that safe working condition and safety equipment's has been provided</p>

		<p>for all skilled and unskilled Labour. It will be checked during verification through site visit observations and interview with people if noise level is maintained within permissible limit.</p> <p>Safety equipment to be provided to workers both skilled and unskilled will be checked during the verification of the project activity.</p> <p>Based on the roles and responsibility of employee, the salary will be higher than the minimum salary of the region and hence the parameter monitoring is acceptable to the assessment team/35/.</p>
SDG 13: Climate Action	Emission Reductions	<p>The emission reduction calculation will be done as per the formula mentioned in the GS PDD. As the parameter is subjected to monitoring the same will be checked during the verification of the project activity.</p>
Safeguarding Principle 8.2	Soil Erosion	<p>During the construction period stripping of top soil is expected for installation of wind turbine's tower, office buildings, accommodations and electrical substation. The project developer will back fill the soil into the same or lower area to minimize effects of the drilling on the ground condition in the Project area.</p> <p>During the operation period the stripped top soil will be all closed and the surface of the turbine installation area should be planted with vetiver grass which can preserve the ground surface and prevent any effect to soil resource.</p> <p>This parameter will be monitored once during the monitoring period.</p>

Safeguarding Principle 9.5	Hazardous waste management	<p>The project developer will implement waste management plan for all waste special waste storage areas and receptacles on site and in the office including locked and bunded areas waste disposal by approved contractors and monitor usage of office consumables to target reduction/34/.</p> <p>The waste management plan will be applicable to the wastes arising during commissioning and operation of the project activity.</p> <p>This parameter will be monitored once during the monitoring period.</p>
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Principle 5: Financial Additionality & Ongoing Financial Need

The project activity is already registered under CDM (UNFCCC ref. No-7474) and the additionality of the project activity has been demonstrated in line with “Tool for the demonstration and assessment of additionality” (version 07.0.0) /03/. All steps of the additionality tool have been demonstrated in the registered CDM PDD and validation report /03/. As per the “Tool for the demonstration and assessment of additionality”, the following requirements have been justified in the CDM validation report (UNFCCC registration number # 7474):

- a. Step 1: Identification of alternatives: Baseline alternatives have been identified as per the methodology and the selection of the plausible baseline scenario has been demonstrated, as detailed in registered CDM PDD and validation report. The identified baseline scenario, as per the methodology, is “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”;
- b. Step 2: Investment analysis: Benchmark analysis has been performed to demonstrate the financial additionality of the project activity. As mentioned in the registered CDM PDD and validation report, the equity benchmark of the project activity is 11.26% and the project IRR of the project activity is 7.32% /2 & 3/.
- c. Step 3: Barrier analysis: This step has not been performed in the registered CDM PDD /03/.
- d. Step 4: Common practice analysis: Through common practice analysis, it has been concluded that the project activity is not a common practice in the geographical region where the project activity is located /03/.

In conclusion, the assessment of the arguments presented in the CDM validation report is deemed to sufficiently demonstrate that the emission reductions resulting from the proposed project were additional.

6. Calculation algorithms and/or formulae used to determine emission reductions

The project activity is registered under CDM project and applied ACM0002 version 20.0, since the version of applied methodology referred during CDM validation is the latest one, hence in accordance with the GS4GG requirements.

The baseline scenario and the emission reduction calculations have been performed as per the final CDM PDD /03/. The emission factor of grid, in the registered CDM PDD, has been calculated using the data published by “Thailand Grid Emission Factor for GHG Reduction Project/Activity” dated 28/09/2017 Published by Thailand Greenhouse Gas Management Organisation (Public Organisation) in line with the provisions of applied methodology ACM0002 version 20.0 which is the latest version of the methodology and in accordance with the GS requirement.

The emission factor was determined 0.5692 tCO₂e/MWh leading to annual emission reductions of 132,339 tCO₂e. The emission factor obtained using latest data published by host country DNA is used by the PP and found to be satisfactory, hence accepted. The PP has provided the calculation for the same in the ER calculation sheet and it was validated by the assessment team. The baseline emission factor for the electricity system has been calculated on ex-ante basis and will remain fixed for the entire project crediting period.

SDG ex-ante determination:

SDG 13 Climate Actions:

Year	Baseline estimate(tCO ₂)	Project estimate(tCO ₂)	Net benefit(tCO ₂)
Year 1	132,339	0	132,339
Year 2	132,339	0	132,339
Year 3	132,339	0	132,339
Year 4	132,339	0	132,339
Year 5	132,339	0	132,339
Year 6	132,339	0	132,339
Year 7	132,339	0	132,339
Total	926,373	0	926,373
Number of crediting years	7 years		
Annual average over the crediting period	132,339	0 tCO ₂	132,339

SDG 7: Affordable and Clean Energy

Year	Baseline estimate (MWh)	Project estimate (MWh)	Net benefit (MWh)
Year 1	0	232,500	232,500
Year 2	0	232,500	232,500
Year 3	0	232,500	232,500
Year 4	0	232,500	232,500
Year 5	0	232,500	232,500
Year 6	0	232,500	232,500
Year 7	0	232,500	232,500
Total	0	1,627,500	1,627,500
Number of crediting years	7 years		
Annual average over the crediting period	0	232,500	232,500

SDG 3: Number of community development activities

Year	Baseline estimate	Project estimate	Net benefit (MWh)
Year 1	0	1 activity	1 activity
Year 2	0	1 activity	1 activity
Year 3	0	1 activity	1 activity

Year 4	0	1 activity	1 activity
Year 5	0	1 activity	1 activity
Year 6	0	1 activity	1 activity
Year 7	0	1 activity	1 activity
Total)	0	7 activities	7 activities
Number of crediting years	7 years		
Annual average over the crediting period	0	1 activity	1 activity

SDG 8: Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit (MWh)
Year 1	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 2	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 3	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 4	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 5	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 6	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Year 7	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Total)	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs
Number of crediting years	7 years		
Annual average over the crediting period	0 Training, 0 Jobs	2 Training, 40 Jobs	2 Training, 40 Jobs

7. Final Project Design Certification Statement

Earthood Services Private Limited (ESPL) has performed a validation of the “West Huaybong 3 wind farm project”. The validation was performed on the basis of UNFCCC criteria CDM Validation and Verification Standard version 02.0 for the project activity, Gold Standard GS4GG guideline and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the final GS PDD and the subsequent follow-up interviews has provided ESPL with sufficient evidence to determine the fulfillment of stated criteria.

In our opinion, the project meets all relevant UNFCCC and Gold Standard requirements for the Gold Standard and all relevant host country criteria. The project will hence be recommended by ESPL for registration with the Gold Standard Registry.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 132,339 tCO₂e per year.

The validation has been performed following the requirements of the latest version of the CDM Validation and Verification Standard version 02.0 for the project activity, GS4GG guideline and on the basis of the contractual agreement.

In detail the conclusions can be summarized as follows:

- The project does not result in negative social, environmental and/or economic impacts.
- The project contribution to Environment, Social Development and Economic and technological development
- The project additionality is sufficiently justified in the Gold Standard PDD
- The project does not result in diversion of ODA.
- Conservative assumptions were applied in the project description.
- The monitoring plan of SDG parameters is transparent and adequate.
- The project meets the stakeholder consultation requirements.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Appendix 1. Abbreviations

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EPC	Engineering, Procurement and Construction
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GHG	Greenhouse Gas(es)
GS4GG	Gold Standard for Global Goals
HCA	Host Country Approval
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
JMR	Joint Meter Reading
LoA	Letter of Approval
MoC	Modalities of Communication
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
ODA	Official Development Assistance
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
PRC	Post Registration Changes
PS	Project Standard
TR	Technical Review
UID	Unique Identification number
UNFCCC	United Nations Framework Convention on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. CV of validation team

Competence Statement			
Name	Ravi Kant Soni		
Country	India		
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)		
Experience	8 Years +		
Field	Energy and Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002		
Local expert	YES (India)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	YES (TA 1.2)		
Reviewed by	Shreya Garg	Date	04/06/2019
Approved by	Anshika Gupta	Date	04/06/2019

Name	Anshika Gupta		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	4 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.A., AMS-II.G., ACM0002, AMS-III.A.V.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	Yes (TA 1.2, TA 3.1)		
Reviewed by	Shreya Garg	Date	12/03/2019
Approved by	Kaviraj Singh	Date	12/03/2019

Competence Statement	
Name	Shreya Garg
Country	India

Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Appendix 3. Documents reviewed or referenced

Sr. No.	Author	Title	References to the document	Provider
1	PP	GS Project Design Document	Version 02, dated 01/06/2020	PP
			Version 03, dated 15/01/2021	
			Version 04, dated 15/02/2021	
			Version 05, dated 15/05/2021	
2	PP	Investment Analysis (Project IRR and Benchmark Calculation) Sheet (CDM registered)	-	
3	PP	Registered CDM PDD	Version 05, dated 29/10/2020	
3.1	TUV Nord	CDM Validation report	Dated 22/10/2012	
	Applus+Certification	RCP validation report	Version 02, dated 05/11/2020	
4	PP	Emission reduction calculation spread sheet (For GS validation)	Version 05 3 , dated 15/0 5 4/2021	PP
5	Thai DNA	Host Country Letter of Approval	Dated 05/04/2012	PP
6	UNFCCC	Status of ratification of the Kyoto Protocol.	https://unfccc.int/node/61082	Other
7	GS Registry	Project web page (GS7746) https://registry.goldstandard.org/projects/details/2591	-	Other
08	Thailand Greenhouse Gas Management Organisation	Thailand Grid Emission Factor for GHG Reduction Project/Activity	Dated 28/09/2017	Other
09	PP	Minutes of meeting of Local Stakeholder's consultation (CDM)	Dated 15/09/2011	PP
10	PP	Attendance sheet of Local Stakeholder Consultation meeting (CDM)	Dated 15/09/2011	PP
11	CDM EB	Approved methodology ACM0002 "Grid-connected electricity generation from renewable sources"	Version 20.0	Other
12	PP	Declaration from PP for no ODA	Dated 22/01/2020	Other
12.1	PP	Declaration for no double counting of credits	-	PP
13	PP	Training Records of project staff at site	-	PP
14	United Nation	Universal declaration of Human Rights https://www.un.org/en/universal-declaration-human-rights/	-	Other
15	CDM EB	CDM VVS for Pas	Version 02.0	Other
16	CDM EB	CDM PS for Pas	Version 02.0	Other
17	CDM EB	CDM PCP for Pas	Version 02.0	Other
18	GS registry	GS4GG Principles & Requirements	Version 1.2	Other
19	UNFCCC	Project web page (UN Ref- 7474) https://cdm.unfccc.int/Projects/DB/RWTUV1348727249.16/view?cp=1	-	Other
20	Government of Thailand	Gender Equality Act of 2015 https://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=218	-	Others

		46&LangID=E#:~:text=To%20further%20eliminate%20gender%2Dbased,the%20amendment%20to%20the%20anti%20D Ratification of ILO Conventions Convention C100 - Equal Remuneration Convention, 1951 (No. 100) (ilo.org)		
21	Government of Thailand	UN Agreement on Human Rights https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx Ratification of UN convention against Corruption on 09/12/2003 https://www.unodc.org/unodc/en/corruption/ratification-status.html	-	Others
22	Environmental Research Institute, Chulalongkorn University	Initial Environmental Examination (IEE) report for the project activity	-	PP
23	PP	Emails sent to NGO, Stakeholders, villagers for stakeholder feedback round	Dated 06/07/2020	PP
26	PP	Stakeholder Consultation Report (SCR) for the project	Dated 15/02/2021	PP
27	PP	Publication of project for 2 months period. https://drive.google.com/file/d/1A1ky7D7In869N1jduLicwk6Z46eCX9sa/view?usp=sharing	-	Others
28	GS	COVID-19: INTERIM MEASURES V 03	Dated 18/12/2020	Others
29	GS	GOLD STANDARD FOR THE GLOBAL GOALS - Principles & Requirements,	Version 1.2, dated Oct 2019	Others
30	GS	Renewable Energy Activity Requirements	Version 1.2, dated Oct 2019	Others
31	PP	Deviation Request Form	Dated 18/12/2020	PP
32	PP	Training records	FY 2019	PP
33	PP	Company HR policy	-	PP
34	PP	HSE report	FY 2019	PP
35	PP	HR policy and CSR policy	FY 2020	PP

APPENDIX 4. FINDINGS OVERVIEW

Table 1. Remaining FAR from validation

FAR ID	-	Section no.	-	Date :
Description of FAR				
Project participant response				Date :
Documentation provided by project participant				
DOE assessment				Date:

Table 2. CL from this verification

CL ID	01	Section no.	5.7	Date :	24/09/2020
Description of CL					
<p>The PP is requested to clarify how the double counting of the credits generated from the project activity is avoided and also submit the declaration stating that states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period. Please submit the relevant documents to justify ownership of the project activity.</p>					
Project participant response					Date : 15/01/2021
<p>The project is registered under CDM and now applying for gold standard labeling. The project is not registered under any mechanisms. Also, the project will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period. A declaration has been submitted now.</p>					
Documentation provided by project participant					
Declaration letter					
DOE assessment					Date: 10/02/2021
<p>The PP has provided the declaration stating that states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period, found to be satisfactory.</p> <p>The ownership of the project activity is verified through the commissioning certificates and LoA issued by host country DNA, found to be appropriate.</p> <p>CL #1 is closed.</p>					

Table 3. CAR from this verification

CAR ID	01	Section no.	4.5	Date :	24/09/2020
Description of CAR					
<p>Section E.1: Please provide the relevant documents with reference to initial stakeholder consultation conducted as per CDM requirement.</p> <p>Please provide complete information's about stakeholder feedback round in section E.1 of the PDD, also include the details of the dates during which the stakeholder feedback round was conducted i.e., the documents were made available for public comments for at least 60 days.</p> <p>Please submit SCR (Stakeholder Consultation Report) including the information in all the sections as per the GS template. Also provide the supportive documents (MoM, attendance list etc) for the same.</p>					
Project participant response					Date : 15/01/2021
<p><i>Due to the COVID pandemic, the stakeholder consultation is not conducted. PP has applied deviation for the same. The physical stakeholder consultation will be conducted after the design certification but before registration. The deviation approval from Gold Standard is submitted now.</i></p> <p><i>However, the 60 days stakeholder feedback round is conducted and the same is now included in the PDD. The email communication is also submitted.</i></p>					
Documentation provided by project participant					

<i>The deviation form with GS approval</i>	
<i>Email communication for SFR</i>	
DOE assessment	Date: 10/02/2021
As per the registered CDM PDD, local stakeholder consultation (physical meeting) was conducted, please clarify why the details of the same is not provided in the GS PDD. Open The project documents were made available publically for 60 days as per the GS requirements, also the stakeholders were invited for SFR as verified through the email. However due the COVID-19 pandemic, the physical meeting with the stakeholders (stakeholder feedback round) could not be conducted. The PP has sought the deviation against the guidelines as outlined under paragraph 6.1.4 of Stakeholder-Consultation-Requirements, v1.2 is applied. The SFR will be conducted after design certification as soon as the situation allows. CAR #1 is open	
Project participant response	Date : 15/02/2021
The details of the CDM stakeholder meeting are now provided in the GS PDD.	
Documentation provided by project participant	
<i>Revised PDD</i>	
DOE assessment	Date: 28/02/2021
The PP has provided the information's regarding the local stakeholder consultation (physical meeting) was conducted at the time of CDM validation, please in the GS PDD and found to be satisfactory. CAR #1 is closed.	

CAR ID	02	Section No.	5.10	Date : 24/09/2020
Description of CAR				
Section D of the PDD: The PP is requested to justify how the assessment/Impacts of the requirements outlined under safeguarding principles is done for the project activity and also submit the relevant documentary evidences:				
<ul style="list-style-type: none"> i. Safeguarding Principles 3.4.1) sites of cultural and historical heritage ii. (Safeguarding Principles 3.4.2) forced eviction and displacement iii. (Safeguarding Principles 3.4.3) Land Tenure and Other rights iv. (Safeguarding Principles 3.4.4) Indigenous peoples v. (Safeguarding Principles 3.6.1) Labor rights vi. (Safeguarding Principles 4.2.1) Impact on Natural Water Patterns/Flows vii. (Safeguarding Principles 4.2.2) Erosion and/or water body Instability viii. (Safeguarding Principles 4.3.10) High Conservation Value Areas and Critical Habitats 				
Please clarify why the ex-ante estimation of outcomes linked to each of the SDG is not provided under section B.6.4 of the PDD.				
Please clarify why the parameter relevant to SDG13 is not included in the monitoring plan (section B.7.1 of the PDD).				
Project participant response				Date : 15/01/2021
<i>The Initial Environmental Examination (IEE) report and Company HR policy has been submitted as a evidence for safeguarding principle 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.6.1, 4.2.1, 4.2.2 & 4.3.10.</i>				
<i>The ex-ante estimation of SDGs is now provided as per the requirements in the latest PDD template</i>				
<i>The parameters relevant to SDG 13 are now included in monitoring plan now.</i>				
Documentation provided by project participant				

<i>Initial Environmental Examination</i> <i>Company HR policy</i> <i>Revised PDD</i>	
DOE assessment	Date: 10/02/2021
<ol style="list-style-type: none"> The PP has provided the assessment/Impacts of all the requirements outlined under safeguarding principles under Appendix-1 of the MR and the same is verified through the initial environmental examination (IEE) report, found to be satisfactory, hence accepted. The PP has provided the ex-ante estimation of outcomes linked to each of the SDG under section B.6.4 of the PDD, found to be satisfactory, hence accepted. The PP has included the parameters relevant to SDG13 in the monitoring plan (section B.7.1 of the PDD), found to be satisfactory, hence accepted. <p>Please address the following comments:</p> <ol style="list-style-type: none"> Please clarify how the start date and length of crediting period is in line with the GS PDD template guidelines. Please clarify why the parameters relevant to the monitoring of safeguarding principles are not reported under section B.7.1 of the PDD. Please submit the SCR report. <p>CAR #2 is open</p>	
Project participant response	Date : 15/02/2021
<ol style="list-style-type: none"> The length of crediting period is now corrected to 7 years as per the GS4GG requirements for the CDM registered project The parameters relevant to the monitoring of safeguarding principles are now reported under section B.7.1 of the PDD The SCR report is submitted now. 	
Documentation provided by project participant	
<i>Revised PDD</i> <i>Revised ER sheet</i> <i>SCR report</i>	
DOE assessment	Date: 28/02/2021
<p>The PP has corrected the start date and length of crediting period in the GS PDD and found in line with the GS PDD template guidelines.</p> <p>Parameters relevant to the monitoring of safeguarding principles are now reported under section B.7.1 of the PDD, found to be satisfactory.</p> <p>The PP has submitted the SCR report and found to be appropriate.</p> <p>CAR #2 is closed.</p>	

Table 4. FAR from this validation

FAR ID	01	Section No.	5.10	Date : 10/02/2021
Description of FAR				
<ol style="list-style-type: none"> The PP need to conduct the stakeholder feedback round (SFR) prior to first verification of the project activity under GS. The VVB shall check the ID metering devices at the next verification. The VVB to conduct the interviews with local villagers at the next verification of the project activity. 				
Project participant response				Date : DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY