

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
DESIGN CERTIFICATION (VALIDATION)**



Project Title: 200 MW Wind Power Project in Tamil Nadu by Orange Sironj
GS project ID: GS 6290
Internal ID: 5617
Customer: Orange Sironj Wind Power Pvt Ltd.
Date: 14/08/2019
Revision: 02

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
A+SH_SYST_TQC_005617	11/09/2018	02	14/08/2019
Client	Orange Sironj Wind Power Pvt Ltd.		
Project Title	200 MW Wind Power Project in Tamil Nadu by Orange Sironj		
Project Participants	Orange Sironj Wind Power Pvt Ltd.		
Project Location	The Project will be located at Village Poovani, Dist. Thoothukudi, Tamilnadu. The site is about 15 kms from Thoothukudi District Headquarter. The Project site is well connected through NH7 & NH45. Nearest railway station from the Project site is Maniyachichi Railway station and Kailasapuram Railway station. Tuticorin airport is nearest airport.		
Contact Person	Mr. Murali Krishnam Raju M		
GS4GG Version: GS4GG GS4GG Activity Requirements: RE Activity Requirements Applied Methodology Version: ACM0002: Grid-connected electricity generation from renewable sources - Version 18.1 Current Methodology Version: ACM0002: Grid-connected electricity generation from renewable sources - Version 18.1		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scope: 1 Technical Area: 1.2	
First PDD Version: 01 Date: 29/01/2018		Final PDD Version: 04 Date: 07/08/2019	
Estimated Annual Emission Reductions: 613,844 tCO ₂ e per year			
Selected Sustainable Development Goals (SDGs): 7; 8; 13			
Design Certification Summary			
LGA Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Orange Sironj Wind Power Pvt Ltd. to perform the GS VER validation of “200 MW Wind Power Project in Tamil Nadu by Orange Sironj” applying the methodology ACM0002 version 18.1. The management of Orange Sironj Wind Power Pvt Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions. A desk review and a site visit have been conducted to verify the data submitted in the GS4GG PDD. Applus+ Certification confirms the following have been reviewed: a. The GS4GG PDD; b. The applied monitoring methodology; c. Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; d. GS4GG guideline and related Annex. e. All information and references relevant to the project activity's resulting in estimated emission reductions. The scope of the validation is defined as an independent and objective review of the project design document, against the Kyoto Protocol requirements, UNFCCC rules, applicable CDM requirements and requirement of Gold Standard. The validation report is finalized based on the assessment of the Gold Standard GS4GG 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 report and the annexed validation checklist describes a total of 6 findings which include: • 09 Corrective Action Requests (CARs);			

- 0 Clarification Requests (CLs/CRs);
- 0 Forward Action Requests (FARs).

The PP has responded these findings by modifying the Gold Standard Passport and providing adequate additional explanations and evidences. Applus+ Certification confirms that all the findings have been “closed out” before submitting the request for registration to GS board.

As a summary of the validation, the review of the Gold Standard GS4GG PDD and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence for the determination of the project's fulfillment with all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and requirement of Gold Standard. Therefore, Applus+ Certification recommends the project for registration by the GS Registry as GS VERS project.

ASSESSMENT TEAM		
Team Members	Type of Resource ¹	Organization (for OEs)
Lead Auditor: Mr. Sukanta Das	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications private Limited
Auditor: NA	☐ IR ☐ EI ☐ OE	-
Technical Expert: Mr. Sukanta Das	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications private Limited
Technical Reviewer: Mr. Denny Xue	☐ IR ☒ EI ☐ OE	-

¹ IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

ABBREVIATIONS	
AMS	Approved Methodology Small Scale
Applus+ LGAI / Applus+	LGAi Technological Center, S.A. (Applus+ Certification)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL / CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
OM	Operational Margin
PP	Project Participant
PS	Project Standard
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

Table of Content

Contents

1. INTRODUCTION.....	6
1.1 Objective	6
1.2 Scope	6
2. METHODOLOGY	7
2.1 Appointment of the assessment team.....	7
2.2 Document review.....	8
2.3 Follow up Interviews.....	8
2.4 Resolution of Clarification and Corrective Action requests.....	9
2.5 Internal Quality Control	9
3. PROJECT DESIGN CERTIFICATION ASSESSMENT	10
3.1 Approval	10
3.2 Participation.....	10
3.3 Scale of the project	10
3.4 Greenhouse Gases.....	10
3.5 Project timeframe	11
3.6 Project Boundary	11
3.7 Baseline Identification	11
3.8 Eligibility Principles Assessment	12
3.9 Calculation algorithm and/or formula used to determine emission reductions ..	49
4. REFERENCE.....	54
5. FINAL PROJECT DESIGN CERTIFICATION STATEMENT	56

Appendix:

Appendix 1: Corrective Action Request / Clarification Request / Forward Action Request resolution table.

Appendix 2: Audit Team CVs.

1. INTRODUCTION

Orange Sironj Wind Power Pvt Ltd. has commissioned Applus+ Certifications to perform a validation of “200 MW Wind Power Project in Tamil Nadu by Orange Sironj” (hereafter referred to as the project activity) in the state of Tamil Nadu in the republic of, India. This validation report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board as well as requirement of Gold Standard GS4GG guideline.

The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, the generated green electricity will contribute to climate change mitigation efforts. This project activity is a large-scale wind project. Orange Sironj Wind Power Pvt Ltd is the project investor for this project activity. The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 613,844 tCO₂e per annum, thereon displacing 635,976 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/ fossil fuel based power plant.

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

The details of the project are mentioned in the table:

Project Investors' Name	Capacity in MW	State
Orange Sironj Wind Power Pvt Ltd	200	Tamil Nadu

1.1 Objective

The purpose of a validation is to have an independent third party assessment of the GS4GG PDD and compliance with the GS requirements as described in the Gold Standard documentation and supporting documents by the client. Validation is part of the GS VER project cycle and will finally result in a conclusion by Applus+ Certifications whether a project activity is valid and should be submitted for registration of a proposed project activity rests at the GS and the Parties involved.

1.2 Scope

The validation scope is defined as an independent and objective review of the project PDD, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against all applicable CDM and GS requirements including the approved baseline and monitoring methodology ACM0002 version 18.1. The validation was based on the requirements in the Validation and Verification Standard version 01 for the project activity and Gold Standard GS4GG requirement.

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

2. METHODOLOGY

The project assessment is based on the Clean Development Mechanism Validation and Verification Standard version 1.0 for the project activity, Gold Standard requirement for GS4GG and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the project activity are appointed. Once the project is made available for Applus+ LGAI, the members of the assessment team carried out:

1. A desk review of the GS4GG PDD;
2. Follow-up interviews with project stakeholders;
3. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The prepared validation report and other supporting documents then undergo an internal quality control before being submitted to the GS Registry.

The GS overview documents which is referred as DVR is as below

Validation Checklist Table 3: Resolution of Audit Findings			
Type:	☐ CAR	☐ CL/CR	☐ FAR
Number:			
Raised by:		Ref. to checklist in table 1&2:	
Description of the audit finding		Date:	
The description of the audit finding should be clearly included here.			
Project Participant's response		Date:	
The responses given by the project participants during the communications with the validation team should be included here.			
Documentation provided as evidence by Project Participant			
The evidences provided by the project participants should be included here.			
Auditor's assessment comment		Date:	
This section should include how the audit finding is assessed by the assessment team.			

The Complete List of CAR/CL/FAR is included as Appendix 1 of this report

2.1 Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project

assessment team in accordance with the appointment rules in the internal Quality Management System of LGAi Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAi Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Sukanta Das	LA/TE	YES	YES	YES	YES
Mr. Denny Xue	TR	YES	YES	YES	NA

The complete list of CVs is included as Appendix 2 of this report.

2.2 Document review

The Gold Standard PDD submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in Reference 4 to this report.

2.3 Follow up Interviews

Interviewed Personnel	Functions	Organization
Mr. Murali Krishnam Raju M	PP representative	Orange Sironj Wind Power Pvt Ltd.
Mr. Gopal	Villager	Local stakeholder
Mr. Prasad	Villager	Local stakeholder

Duration of on-site inspection: 09/05/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring.(Discussion with PP) Assessment team meet with the local stakeholder and confirmed that there is no grievance resulted from the project activity in and out of the project location. The stakeholder confirmed that the project resulted in employment and improves lifestyles of the personal/families in the nearby villages. (Discussion with Stakeholder)	The Wind power project is Village: Poovani District : Thoothukudi, Tamil Nadu, India	09/05/2018	Mr. Sukanta Das

2.4 Resolution of Clarification and Corrective Action requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needs to be clarified for Applus+ Certifications positive conclusion on the PDD. The Corrective Action Requests and Clarification Requests raised by Applus+ Certifications were resolved during communications between the Client and Applus+ Certifications to guarantee the transparency of the validation process, the concerns raised and responses given are summarized in Appendix 1 below.

The Gold Standard GS4GG PDD version 03 submitted on 25/07/2018 serves as the basis for the final assessment presented.

2.5 Internal Quality Control

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

After confirmation of the PP the validation opinion and relevant documents are submitted to the GS Registry.

3. PROJECT DESIGN CERTIFICATION ASSESSMENT

3.1 Approval

This section is not applicable as this is a GS VER project.

3.2 Participation

The project participants are Orange Sironj Wind Power Pvt Ltd as the project proponent from the host party India. The host country involved is parties to the Kyoto Protocol and meet and requirements to participate in the Gold Standard.

3.3 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 18.1. The total capacity of the power project is 200 MW as validated during the onsite visit. Since the design capacity of the project activity is more than 15 MW, which is stipulated limit for large scale projects by GS/CDM, the project is correctly classified as large-scale project. Assessment team also checked the requirement of latest applicable methodology ACM0002 version 18.1 and confirms that the project qualifies the requirement of the latest methodology also (I.e. scale, applicability, baseline, additionality and monitoring).

a) 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 India. The project type is identified as renewable energy project in section A.6 of the GS4GG 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 toolkit. 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.

3.4 Greenhouse Gases

The project activity leads to displacement of electricity generation from fossil fuel based power plants connected to the regional grid by renewable energy generated using Wind power. The operation of the project activity will result in reduction of carbon-dioxide from the atmosphere due to displacement of electricity in grid by the renewable energy. Hence, the greenhouse gas identified in the PDD is carbon dioxide which is duly validated by the DOE.

The GHG emission sources considered for the project boundary and their explanations are as follows:

Source		GHGs	Included?	Justification /Explanation
Baseline scenario	Grid connected	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source

	electricity generation.	N ₂ O	No	Minor emission source
Project scenario	Greenfield Wind PV Power Project Activity.	CO ₂	No	No CO ₂ emissions are emitted from the project
		CH ₄	No	Project activity does not emit CH ₄
		N ₂ O	No	Project activity does not emit N ₂ O

3.5 Project timeframe

- **Other certification scheme:** The project activity has not applied, confirmed by project developer, for any other certification like Green or White certification. Therefore, the validation team concluded that the project activity meets the applicability criteria of Gold Standard. Assessment team checked the double counting clarification vide GS guideline on double counting in the context of Green Certificate Schemes, 22/01/2015. A declaration dated 19/07/2018 confirms that the project activity is not taking any REC Benefits under REC mechanism. The project is applied for GS VER validation. Assessment team also checked the REC web site (<https://recregistryindia.nic.in/>) and confirms that the project is not undertaking any REC benefits at present nor intended to take it in near future.

3.6 Project Boundary

As per ACM0002 version 18.1 - "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/GS project power plant is connected to".

The project boundary includes the Wind project, sub-stations, grid and all power plants connected to grid. The proposed project activity will evacuate power to the INDIAN grid. Therefore, the entire INDIAN grid and all connected power plants have been considered in the project boundary for the proposed CDM project activity. The same is checked by the assessment team during the validation site visit and found correct. DOE also confirms that the project activity complies with the requirement of project boundary in ACM0002 version 18.1, which is the latest applicable methodology available to the project participant.

3.7 Baseline Identification

Being a grid connected Wind energy generation project, PP developed the project based on the Methodology ACM0002 version 18.1. As per methodology version 18.1, Para 24:

"If the project activity is the installation of a Greenfield power plant, the baseline scenario is 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 project activity involves setting up of Wind projects to harness the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants. In the absence of the project activity, the equivalent amount of power would have been drawn from the Indian grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid. As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline and pre-project scenario is same.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. The CEA database version 12 was the latest available data at the time of PDD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9652 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 12.0, published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9843 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3 year (2013-14, 2014-15, 2015-16) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 12.0, published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.9083 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 12.0 (2015-16), published by Central Electricity Authority (CEA), Government of India

3.8 Eligibility Principles Assessment

- Principle 1. Contribution to Climate Security & Sustainable Development**

The baseline scenario and the emission reduction calculations have been performed as per the requirement of the methodology. The emission factor of grid, in the GS4GG PDD, has been calculated in-line with the provisions of applied methodology ACM0002 version 18.1. The latest applicable version of “Tool to calculate the emission factor for an electricity system” is version07.

The applicability criteria are now detailed out in the report as below:

Applicability 1: Assessment team checked that the project activity is installation of a new grid connected Wind power plant/ unit at a site where no renewable power plant was

operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable.

Applicability 2: Assessment team checked that the proposed project activity is an installation of a new grid connected wind power plant/ unit and hence criteria under point (a) is met. The project does not involve any capacity additions, retrofits or replacements and therefore this criteria under point (b) is not applicable.

Applicability 3: Assessment team checked that the proposed project activity is an installation of a new grid connected wind power plant/ unit and not Hydro power plant, therefore this criteria is not applicable for this project activity.

Applicability 4: Assessment team checked that the proposed project activity is an installation of a new grid connected wind power plant/ unit and not Hydro power plant, therefore this criteria is not applicable for this project activity.

Applicability 5: Assessment team checked that the project activity is installation of a new grid connected wind power project/ unit and does not involve switching from fossil fuel to renewable energy, therefore criterion described in point (a) is not relevant to the project activity.

This is a wind power plant/ unit and not a biomass fired plant, therefore criterion described in point (b) is not applicable to the project activity

Applicability 6: Assessment team checked that the project activity is a new grid connected wind power plant/ unit and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

Applicability conditions of “Tool to calculate the emission factor for an electricity system”

- OM, BM and CM are estimated using the tool under section B.6.2 of the PDD for calculating baseline emissions.
- The project activity is grid connected and thus emission factor is calculated and thus OM, BM and CM are estimated using the tool under section B.6.2 of the PDD for calculating baseline emissions.
- The project activity is located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.
- The project activity is a grid connected Wind power project and not a hydro power plant. Therefore, this criterion is not applicable for the project activity.

Applus+ Certification confirms that the application of the baseline methodology is transparent and conservative and confirms that the chosen baseline and monitoring methodology i.e. ACM0002 version 18.1 is applicable to the project activity.

DOE also confirms that the project activity complies with the requirement of baseline determination in ACM0002 version 18.1, which is the latest applicable methodology available to the project participant. The project activity applies grid emission factor as per the latest available CEA database version 12 and the emission factor applied is 0.9652tCO₂/MWh. This calculated emission factor is conservative as per tool.

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment and Forests (MoEF), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India². Thus the project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

I. Social well-being:

The project activity provided / provides job opportunity to local people during erection, commissioning and maintenance of the wind machines. Frequency of visiting villages and nearby areas by skilled, technical and industrialist increase due to installation /site visit/operation and maintenance work related to WTGs. This directly and indirectly positively effects the economy of villages and nearby area.

II. Economic well-being:

The CDM project activity generates permanent and temporary employment opportunity within the vicinity of the project. The electricity supply in the nearby area improves which directly and indirectly improves the economy and life style of the area.

III. Environmental well-being:

The Wind power is one of the cleanest renewable energy powers and does not involve any fossil fuel. There are no GHG emissions. The impact on land, water, air and soil is negligible. Thus the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

IV. Technological well-being:

The project activity is step forward in harnessing the untapped wind potential and further diffusion of the wind technology in the region. The project activity leads to the promotion of WTGs and demonstrates the success of wind turbines in the region which further motivate more investors to invest in wind power projects. Hence, the project activity leads to technological well-being.

Assessment team checked the technical details of the WTGs from the manufacturer's technical manual and found the same to be correct.

PARAMETER	VALUE
Model: G114-2.0 MW CS Max Power	
General Data	
Make of WTG	Gamesa
Type	Three-bladed wind-facing rotor type

² <https://cdm.unfccc.int/Projects/DB/PJR%20CDM1509426236.44/view>

Number of Blades	3
Design Conditions of WTGs	
Rated power	2 MW
Average annual wind speed (m/s)	6.5
Turbulence intensity 15 (%)	18
Reference 10-minute wind speed in 50 years (m/s).	40
Extreme wind speed in 50 years over a 3-second average (m/s)	56
Hub Height	106m
Rotor	
Pitch control hydraulic system	Independent hydraulic actuators for each blade that provide a rotation capacity of between -5° and 87° and a system of accumulators which ensure feathering in the event of an emergency.
Diameter	114m
Swept Area	10,207 m ²
Wind speed in operation (rpm)	13.07
Blades	
Length	56m
Weight (t)	11.5 t
Blade cord (maximum/minimum) (m)	3.865 m
Torsion ($^{\circ}$)	Max 25, min -1.5

Gearbox	
Type	1 stage planetary / 2 parallel
Generator	
Type	Asynchronous double-feed unit with 4 poles, coil rotor and slip rings.
Nominal power (kW)	2,170 (stator + rotor)
Voltage (Vac)	690
Frequency (Hz)	50 / 60
Transformer	
Type	Three-phase, dry-type encapsulated
Frequency (Hz)	50 / 60
Insulation class	F or H

Assessment team checked the latitude and longitude of the project activity using GPS meter and also cross checked from the Google earth and found the detail to be correct. The same is defined below:

The Project will be located at Village Poovani, Dist. Thoothukudi, Tamilnadu. The site is about 15 kms from Thoothukudi District Headquarter. The Project site is well connected through NH7 & NH45. Nearest railway station from the Project site is Maniyachichi Railway station and Kailasapuram Railway station. Tuticorin airport is nearest airport. The project coordinates are 8° 49' 30.71" N and 77° 53' 0.73" E.

- **Principle 2: Safeguarding Principles**

The Safeguarding principles assessment is as below:

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes / potentially / no)	Justification of the Assessment team	Mitigation measure (if required)

3.0 SOCIAL & ECONOMIC SAFEGUARDING PRINCIPLES AND REQUIREMENTS 3.1 Principle 1 – Human Rights	1. The Project Developer 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. 2. The Project shall not discriminate with regards to participation and inclusion.	No	The Project is not in conflict with the economic livelihood of the local community. The Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. Further, the Project meets the local labour law requirements thus does not cause any human rights abuse. The India has ratified the United Nations Human Rights Rules and regulations. The India ratified the same as per web link³ given below The project adheres to the host country's commitment to: Universal Declaration of Human Rights (UDHR) International Covenant on Economic, Social and Cultural Rights, India Accession 10/04/79⁴ International Covenant on Civil and Political Rights India Accession 10.04.79⁵	Not applicable
3.2 Gender Equality and Women's Rights	(i) Promotes gender equality and the	No	The Project promotes gender equality and the empowerment of women.	Not applicable

³ http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

⁴ <http://hrlibrary.umn.edu/research/ratification-india.html> and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

⁵ <http://hrlibrary.umn.edu/research/ratification-india.html> and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

	empowerment of women. (ii) Does not recognise Projects that contribute to discrimination against women or reinforce gender-based discrimination and/or inequalities. (iii) Recognises and seeks to contribute to SDG 5 – Achieve gender equality and empower all women and girls.		The Project does not cause any discrimination against women. The project Proponent does not indulge in discrimination on basis of gender, race, religion, sexual orientation. The project abide by the Factories Act that prohibits any form of discrimination and is in accordance with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), India ratified it on 09/07/1993 with certain reservations⁶ And International Convention on the Elimination of All Forms of Racial Discrimination; India ratified the convention on 03/12/1968 with certain reservation⁷	
3.3 Principle 3 – Community Health, Safety and Working Conditions	1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	No	The project is renewable energy technology (Wind Technology) and does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community. Necessary health and safety measures is taken during construction and operation	Not applicable

⁶ http://nhrc.nic.in/documents/india_ratification_status.pdf and <http://www.un.org/womenwatch/daw/cedaw/>

⁷ http://nhrc.nic.in/documents/india_ratification_status.pdf and <http://www.refworld.org/docid/3ae6b3940.html>

			phase, relevant staff will be trained to be able to work with high voltages.	
3.4 Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement 3.4.1 Sites of Cultural and Historical Heritage	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)?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.	Not applicable
3.4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. India (the Ministry of Rural development have the “The National Rehabilitation and Resettlement Policy, 2007 http://www.dolr.nic.in/nrrp2007.pdf The project activity do not have any major impact on land use patterns. In accordance with Article 1 of the International Covenant on economic, Social and Cultural Rights the program does not complicit in involuntary resettlement. No Expropriation has been conducted on any private land involved in project activity. Land has been purchased by PP directly from the owner of the land through direct negotiation of commercial terms. There has	Not applicable

			not been involvement of any government agency in the acquiring the land. The land is acquired on mutual consent between private land owner and PP, thus there are no any issues of dissatisfaction of private land owner.	
3.4.3 Land Tenure and Other Rights	1. Does the Project require any change to land tenure arrangements and/or other rights? 2. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. There are no any uncertainties with regards land tenure, access rights, usage rights or land ownership. Thus land tenure and other rights are with PP.	Not applicable
3.4.4 Indigenous Peoples	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	No	The project is located at site where there are no any peoples residing. The project is located at barren land.	Not applicable

3.5 Principle 5 – Corruption	(a) Does not recognise Projects that engage in, contribute to or reinforce corruption of any kind.	No	The project is renewable energy technology (Wind Technology) and does not contribute to or reinforce corruption of any kind. Indulgence in corruption is an illegal activity in the host country and the local labor compliance takes into account of the same. The project abides by the United Nations Convention Against Corruption. India ratification 09.05.11⁸	Not applicable
3.6 Principle 6 – Economic Impacts 3.6.1 Labour Rights	1. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be	No	Forced labor is an illegal activity in the host country and the local labor compliance takes into account of the same. Further, India is a party to ILO and forced labour is illegal in India. The project does not employ any form of forced or compulsory labour. Employees can quit their Services at any time. The project complies with the Factories Act in India that prohibits forced or compulsory labour⁹. The project activity does not involve any child labour. The project respects fundamental right of employee. There is law in India since 1926 by The	Not applicable

⁸ <http://www.unodc.org/unodc/en/treaties/CAC/signatories.html>

⁹ <http://www.ilo.org/dyn/natlex/docs/WEBTEXT/32063/64873/E87IND01.htm>

	avoided, then guidance shall be sought from Gold Standard. 2. Workers shall be able to establish and join labour organisations. 3. Working agreements with all individual workers shall be documented and implemented. These shall at minimum comprise: (a) Working hours (must not exceed 48 hours per week on a regular basis), AND (b) Duties and tasks, AND (c) Remuneration (must include provision for payment of overtime), AND (d) Modalities on health insurance, AND (e) Modalities on termination of the contract with		Trade Unions Act, 1926¹⁰ which protects rights of industrial trade unions and their members. The agreements are in place for permanent employees The project prefers the local employment and culture is maintained at project site. The country have strict prohibition for child labour¹¹. Thus project does not involve child labour during construction and operation of project activity. The project follows the health, safety and environment guidelines at project site. The project ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.	
--	--	--	--	--

¹⁰ <http://ncw.nic.in/acts/TheTradeUnionsAct1926.pdf>

¹¹ http://www.indianchild.com/child_labour_law_in_india.htm

	provision for voluntary resignation by employee, AND (f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. The Project Developer shall justify that the employment model applied is locally and culturally appropriate. 5. Child labour, as defined by the ILO Minimum Age Convention is not allowed. The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as: (a) Their compulsory schooling (minimum of 6 schooling years) is not hindered,			
--	--	--	--	--

	AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design. 6. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.			
3.6.2 Negative Economic Consequences	Is project involves Negative Economic Consequences 1. The Project Developer shall demonstrate the financial sustainability of the Projects implemented, also including those that will occur	No	No potential risks to the local economy. The financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period. The financial sustainability is demonstrated in in GS4GG PDD and these calculations	Not applicable

	beyond the Project Certification period. 2. The Projects shall consider economic impacts and demonstrate a consideration of potential risks to the local economy and how these have been taken into account in Project design, implementation, and operation and after the Project. Particular focus shall be given to vulnerable and marginalised social groups in targeted communities and that benefits are socially-inclusive and sustainable.		are for entire lifetime of project activity. The project does not involve any negative impacts and no any potential risk to local economy.	
4.1.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is renewable energy technology (Wind Technology) and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.	Not applicable
4.1.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project activity supplies energy to national grid and project activity displaces equivalent quantity of electricity which would have been generated by fossil fuel dominated grid connected power plants.	Not applicable

4.2.1 Impact on natural water patterns and flow	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?	No	The project is renewable energy technology (Wind Technology) and does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s).	Not applicable
4.2.2 Erosion and/or water body stability	1. 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. 2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The project is renewable energy technology (Wind Technology) and does not affect Erosion and/or water body stability.	Not applicable
4.3.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	The project proponent has implemented Environment Health Safety and Social guideline which takes into account the same. The project activity involves barren land and does not involve use of land and soil	Not applicable

			for production of crops or other products. The project does not involve any landscape modification or soil. Hence there is no any impact of this principle.	
4.3.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project is renewable energy technology (Wind Technology). The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions. Thus this section is Not Applicable.	Not Applicable
4.3.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	The project is renewable energy technology (Wind Technology). The Project not be negatively impacted by the use of genetically modified organisms or GMOs. Thus this section is Not Applicable	Not Applicable
4.3.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	The project has received environmental clearance from the State Pollution control Board. Further the EHSS guidelines takes into account the same. The project does not lead to release of any hazardous substances that pose threat to the environment. Rather it aims at reducing the air	Not applicable

			pollution that is prevalent due to use of fossil fuel power plants. The project promotes environmental protection through the use of cleaner technology. The project abides by the stipulations of the Indian Environment Protection Act 1986 ¹² .	
4.3.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project is renewable energy technology (Wind Technology). The project does not involve generation of Hazardous and Non-hazardous Waste. Standard procedure is followed at site during operation and maintenance.	Not Applicable
4.3.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	The project is renewable energy technology (Wind Technology) power generation. There are no any involvement of pesticides and/or fertilisers. Thus this principle is Not Applicable.	Not Applicable
4.3.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	The project is renewable energy technology (Wind Technology) power generation. The project activity does not involve any harvesting of forests. Thus this principle is Not Applicable.	Not Applicable
4.3.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime	No	The project is renewable energy technology (Wind Technology) power generation. The Project does not modify the quantity or nutritional quality of food	Not Applicable

¹² <http://envfor.nic.in/legis/env/env1.html>

	alteration or export or economic incentives?		available. Thus this principle is Not Applicable	
4.3.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project is renewable energy technology (Wind Technology) power generation. The Project does not involve animal husbandry. Thus Not Applicable	Not Applicable
4.3.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.	Not Applicable
4.3.11 Endangered Species	1. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? 2. Does the Project potentially impact other areas where endangered species may be present through trans boundary affects?	No	There are no any endangered species identified at project site and also no species have the route through area. The project activity does not impact other endangered species through trans boundary affects.	Not Applicable

The SDG goals are also described below:

SDG Goal	Assessment of Methodological choices/approaches for estimating the SDG outcome
SDG 7 –Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all	Measurement Method: - Electricity produced and supplied to the grid is monitored through energy meter. Net electricity will be calculated by state electricity board and O&M operator on monthly basis and provided in the share certificate/monthly report or equivalent. The other parameters used for net electricity supplied to grid are mentioned in monitoring plan. QA/QC Process: This parameter is monitored monthly and value of parameter will be cross checked with invoices. The meters will be calibrated on regular frequency. Relevant SDG Target: By 2030, increase substantially the share of renewable energy (635,976 MWh per annum) in the global energy mix. Corresponding indicator: Renewable energy share in the total final energy consumption
SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	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. 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. 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. (Training: 1 nos annually and Employment of 15 staff) Corresponding indicator: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities.

SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts	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 “CO₂ Baseline Database for Indian Power Sector” version 12, published by the Central Electricity Authority, Ministry of Power, and Government of India. This is in line with “Tool to calculate the emission factor for an electricity system, version 7”. The emission reductions are calculated as per the formula provided by the approved methodology ACM0002 version 18.1 QA/QC Process: This parameter is calculated, and no any QA/QC procedure required. Relevant SDG Target: Integrate climate change measures into national policies, strategies and planning (613,844 tCO₂ per annum) from the project 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)
--	---

- **Principle 3: Stakeholder Inclusivity**

As per the CDM/GS requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. The stakeholder consultation meeting took place on 09/05/2018. All the stakeholders have been invited through public notice to attend the stakeholders meeting. The local stakeholders' consultation meeting was attended by local persons including local villagers, local vendors and technology suppliers.

The stakeholders identified by the project participant were local villagers who are the major population of the particular area, local communities and gram panchayat (Village head), Wind supplier, project proponent representatives, O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. The validation team also verified the minutes of meeting to note that no negative comments were received and the same was cross checked with the information obtained during follow up interviews with the stakeholder's.

Thus, Validation team is of the opinion that the stakeholder meeting was adequate and appropriate.

The project activity is a GS VER project and therefore PP was required to conduct a Stakeholder Feedback Round (SFR) covering the issues (if any) related to the project activity. An email dated 25/04/2018 was sent to all the stakeholder and comment are envisaged from for 2 month period. The sample of the emails is also submitted to the DOE. The email attachment is also checked by the assessment team and found correct. Following observations are made by the DOE:

- Different representative of stakeholders like local villagers, head of panchayat, NGOs, PP employees were invited for their comments via emails during stakeholder's feedback round
- No negative comments were received during the period starting from 25/04/2018 to 2 months' time period and local stakeholders were very satisfied with the project activity implementation and operation in their area.

Assessment team asked following queries to the stakeholders during the validation site visit and concludes that stakeholders are overall happy with the implementation of the project activity.

Some of the questions asked to the stakeholders mentioned in section above of this report are reported below:

Name of the stakeholder	Mr. Gopal
Occupation	Villager
DOE QUESTION: Did this Wind power plant cause any pollution? Answer: No, the plant does not cause any pollution. DOE QUESTION: Did PP promised employment opportunity? Answer: Yes, PP told us that employment will be generated and the locals will be given priority. DOE also like to conclude that during the site visit it was observed that local people were employed for security and operation related work like water spraying, vegetation improvement and other unskilled work. DOE also found that skilled local persons were also employed by the organization for the operation and maintenance of the power plant.	
Name of the stakeholder	Mr. Prasad
Occupation	Villager
DOE questions: Did the power plant discharge any harmful pollutants? Answer: NO the plant does not discharge any harmful pollutants. DOE questions: Did the power plant destroy any crop fields?	

Answer: The plant is implemented in barren land and there were no any fertile land or crop which is damaged.

DOE thus conclude that stakeholders are happy with the implementation of the project activity.

- **Principle 4: Demonstration of real outcomes**

The Sustainable monitoring plan is described below:

SDG Parameter	Indicator	Monitoring
SDG 7 : Affordable and Clean Energy	Quantity of net electricity generation supplied by the project plant/unit for captive purpose in year y in MWh	The available parameter to Project owner is net electricity supplied to grid and same is mentioned as monitoring parameter. The net electricity generation is calculated based on Export, import to the meters connected at the sub-station. The calculation of net electricity generation is in the hand of state electricity board and PP has no role to play in the same. At the end of each billing month a Generation statement provided by SECI is created which mentions the value of export and import by individual PP and thus the same is used as primary source of data for emission reduction. The Net electricity is thus calculated based on the values of export and import for the particular billing month. Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the project proponent to the State Electricity Board.

		The energy meters used are tri-vector meters which are of accuracy class 0.2. The meters are monitored continuously & cumulative readings are taken at the end of the month by joint meter reading procedure. These are sealed by State Electricity board to avoid malfunctioning with meter readings. The officials frequently check the meters for tampering and malfunctioning with the meters. Meter is calibrated once in 5 years by the authority in the presence of O&M Contractor / investors representatives and State Electricity board officials to ensure the working of meter within permissible limits. The calculation of net electricity supplied to grid is under purview of state electricity board and Project owner do not have control on it. The onsite practice is thus acceptable to the assessment team as the same is as per the requirement of the approved methodology.
SDG 8 : Decent Work and Economic Growth	Quantitative employment and income generation	Project participant have Documentation pertaining to employment, attendance register and documentary details of training/capacity building. Assessment team also checked the salary slips and confirms that due to project activity peoples are getting more than

		minimum wages as a salary and this salary is better than local level salary. 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.
SDG 8 : Decent Work and Economic Growth	Quality of employment	The training records are maintained on regular basis with annual consolidation. Assessment team checked onsite that at least more than 15 people are expected to be employed at site during crediting period. The employment opportunities generated are local or temporary or permanent as checked and confirmed by the assessment team. The training related to O&M, Safety, emergency procedure, fire safety etc. are provided to employees. 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) activities as per their policy. As the parameter is subjected to monitoring the same will be checked

		during the verification of the project activity. It will be ensured that safe working condition and safety equipment's has been provided 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. Safety equipment to be provided to workers both skilled and unskilled will be checked during the verification of the project activity. Assessment team however checked the same is already provided to the workers as part of companies CSR (EHS) policy
SDG 13: Climate Action	Emission Reductions	The emission reduction calculation will be done as per the formula mentioned in the GS4GG PDD. As the parameter is subjected to monitoring the same will be checked during the verification of the project activity.

Transmission line effect: The project activity is exporting the generated electricity to grid. The EPC contractor and state electricity board is responsible for the construction of transmission line. They are following safety while construction of transmission lines. The project proponent do not have any role in the construction of transmission lines. The standard procedure are followed at site while commissioning the transmission lines.

- **Principle 5: Financial Additionality & Ongoing Financial Need**

During conceptualization of the project activity, board of directors of the project proponents considered the CDM/GS revenue to improve the project financials. During the board meeting dated 28/08/2017 for board of Directors decided that they would consider going ahead for the project activity. In continuation to the board decision, PP issued the respective purchase order for the supply of Wind turbine.

The start date of the project activity is 22/11/2017 (earliest date when the EPC contracts for Wind turbine) and the listing date is 29/01/2018, within 1 year of start date. The first submission of project activity to GS is within one year of start date, thus project activity qualifies as retroactive GS VER project activity. Thus prior consideration of carbon revenue for current project activity is checked by the assessment team and found correct.

In the above background Validation Team concludes that the additionality justification regarding the serious CDM consideration given by the project developer is in accordance with the requirements derived from CDM Validation and Verification Standard version 01.0 for the project activity.

PDD mentioned that the project would not be economically or financially feasible without the revenue from the sale of carbon revenue. The claim of the project developer has been assessed by the Validation Team through the following steps as per the requirement of "Tool for the demonstration and assessment of additionality", Version 07.0.0:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The proposed project activity is not the first-of-its-kind. Hence not applicable.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity:

Identify realistic and credible alternative(s) available to the project participants or similar project developers that provide outputs or services comparable with the proposed VCS project activity.

The purpose of the project activity is to generate electrical power using Wind energy and feed the electricity generated to the grid. Hence, the following alternatives are considered:

Alternative 1: The proposed project activity without GS benefit;

Alternative 2: Continuation of the current situation, i.e., electricity will continue to be generated by the existing generation mix operating in the grid

Having regard to the fact that the project activity under consideration is a Wind power project validation team is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- the applicable environmental regulations do not restrict the use of Wind energy; and

- There is no legal requirement on the choice of a particular technology.

Assessment team noted that the project fulfils the norms put down by Central pollution control board norms. As per Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India), final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (29/02/2016 February 29, 2016).

Being a renewable power project, it falls under the category of White and thus this project do not need clearance for Consent to operate and only needs to inform the relative State pollution control board. The same is done for the project and thus it can be confirmed that it follows the local laws of the host country.

However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP.

Validation team is, therefore, convinced that the project developer has taken into consideration all realistic and credible alternatives (having regard to the governing methodologies) including the project being undertaken as a non-GS activity and continuation of current scenario. The identification of alternatives is in conformity with the guidance given by the tool.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Sub-step 1b: Consistency with mandatory laws and regulations:

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution. (This sub-step does not consider national and local policies that do not have legally-binding status.)

Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- the applicable environmental regulations do not restrict the use of solar energy; and
- There is no legal requirement on the choice of a particular technology.

Moreover, Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity.

Step 2: Investment analysis

Determine whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. To conduct the investment analysis, use the following sub-steps:

Sub-step 2a: Determine appropriate analysis method and Sub-step 2b (Option III): Apply benchmark analysis

a) Suitability of investment analysis, financial indicator and benchmark:

Project developer had demonstrated that the financial returns of the proposed VCS project activity would be insufficient to justify the required capital investment as per CDM Validation and Verification Standard version 01.0 for the project activity. In the Initial PD version 01 PP has adopted a conservative approach to identify the benchmark for the project activity. The project is earning revenue from the installation of the project activity. Thus simple cost analysis (Option I) is not appropriate. Also in the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity. Therefore, benchmark analysis (Option III) is used for the project activity as per project type and decision-making context. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for the project activity which is acceptable to the assessment team. Moreover, the financial indicator selected by the PP is correct based on the fact that tool do not restrict the PP to either use project IRR or Equity IRR. This is under the prerogative of the PP to select appropriate indicator based on his preferences to know the IRR based on his equity investment or debt investment. The same is this acceptable to the assessment team. Assessment team however checked the Equity IRR calculation and thus found that input assumptions used for the calculation of Equity IRR is applicable at the time of investment decision of the project and thus is in accordance with the relevant guideline of the tool.

Default Value Benchmark

The cost of equity is determined by selecting the values provided in the Appendix, i.e. Default values for cost of equity (expected return on equity) in the 'Methodological tool: Investment analyses

The Required return on equity (benchmark) was computed in the following manner:

$$\text{Nominal Benchmark}^{13} = \{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$$

Where:

- Default value for Real Benchmark = 10.73% (as per Appendix of EB97, Annex 8)
- Inflation Rate forecast for by Reserve Bank of India (RBI) (i.e. Central Bank of India) for India.

Benchmark estimation

The Cost of Equity has been considered using the "Methodological tool: Investment analysis" available at the time of decision making as well as the latest available value. As a conservative approach, the minimum value of benchmark has been considered as calculated using these 2 approaches.

Table under Appendix in EB97, Annex 8 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 10.73%¹⁴

Thus, minimum cost of equity considered for calculation of Benchmark = 10.73%

¹³ As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

¹⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v8.pdf>

Inflation Forecast for India as per RBI website¹⁵ and corresponding benchmark values:

Project Promoters' Name	Inflation Forecast		Benchmark	
	5 Years	10 Years	5 Years	10 Years
Orange Sironj Wind Power Pvt. Ltd.	4.30%	4.20%	15.49%	15.38%

As a conservative approach, benchmark of 15.38% has been selected for this project activity.

b) Parameters and assumptions used:

Project cost	As per DPR- Available at the time of decision making	INR 1,260 cr= 63.38Mn/MW
	As per Loan Sanction Letter- Third party (approval from authorized bank)	INR 1,255.83 cr= 62.75Mn/MW
PLF	As per 3 rd party PLF Report in accordance with Annex 11 EB 48, para 3 (b)	36.3%
Tariff rate	As per DPR- Available at the time of decision making	INR 2.64/- per kWh
	As per PPA- Actual	INR 2.64/- per kWh
O&M	As per DPR- Available at the time of decision making	INR 14 lacs/WTG/Year with 5.5% escalation y-o-y
	As per TNERC Order dated 31/3/2016, pg 18	1.1% on 85% of Capital investment and 0.22% on 15% of the Capital investment - This amounts to INR 12.16 lacs/WTG/Year $(1.1\% * 85\% * 1,255.83 + 0.22\% * 15\% * 1,255.83)/100$ Escalation of 5% y-o-y
Interest Rate	As per DPR- Available at the time of decision making	10%

¹⁵ <https://rbi.org.in/Scripts/PublicationsView.aspx?id=17759>

	As per Loan Sanction Letter- Third party (approval from authorized bank)	10%
Tax Rates	Actual prevalent tax rates for wind projects have been considered	

The project activity is a renewable source of electricity generation and supplies the electricity to the INDIAN Electricity grid. The key parameters which determine the Equity IRR of the project activity are project cost, PLF and profitability estimates.

In the revised PDD version 02, the project cost is based on the DPR (=Detailed project report) dated 09/2017. DPR report has been submitted to validation team. The cost of turbine as considered from the DPR is 63.38Mn/MW which is the normal price in the region and is acceptable to the assessment team. The DPR was available during decision making and financial profitability of the project was decided based on this DPR. Validation team checked the DPR of the project activity and found that consideration of the project cost in revised PDD version 02 is correct and it is in line with Additionality guideline as well as in compliance to VVS version 01.0. Hence, the project cost consideration is justified. Moreover, the **actual cost of the project activity is 62.75Mn/MW** considering the same the project still do not breach the benchmark as detailed out in sensitivity analysis. If the actual cost is considered IRR is still the same and well below the benchmark. The IRR as per the assumption from the DPR is 10.44% while as per actual cost in accordance to Loan Sanction letter is 10.28% which is still below the benchmark.

In India, infrastructure projects are generally entitled to a debt equity ratio of 75:25. However, depending on the relationship of the client with the bank, its credit rating and collaterals offered, banks consider higher debt equity ratio also. The debt equity ratio for the project is 75:25 Assessment team checked the Loan sanction letter dated 01/03/2018 and found that the ratio of Debt to equity was considered correctly for the present validation condition and IRR estimate. The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation. The installed capacity is based on the capacity of Wind turbine, which is evidenced by the purchase order subsequently.

c) Assessment of Plant Load Factor (PLF):

PP considered the Plant load factor from a third-party engineering company, for expected electricity generation estimation. They are contracted by the PPs for this project. PP has submitted the copies of the PLFs estimation report to the assessment team.

Validation team assessed the PLF assessment report submitted by 3rd party report from AWC True power dated 31/10/2017 and the actual electricity generation and found correct. Same 3rd party PLF report has been used in the financials and the emission reduction calculation. PLF estimation by 3rd party engineering company is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team.

D) Assessment of Electricity Tariff:

The tariff is considered from DPR dated 09/2017 (INR 2.64/- per kWh) available to the PP at the time of decision making.

Validation team assessed the tariff and found that same value was available during decision making and in conformity with additionality guidance. Furthermore, assessment team has also checked the actual tariff in the power purchase agreement (INR 2.64/- per kWh) signed for further substantiation as these values are available during the validation stage. The values as considered for the financial additionality determination are same as the values mentioned in power purchase agreement.

e) Assessment of O& M cost:

PP considered the O&M cost from the DPR dated 09/2017. The DPR has been used in the financial calculation as same was available during decision making and hence applicable. According to additionality guideline the cost should be based on the input parameters available at the time of decision making and the PP has submitted DPR supporting this consideration. Therefore, considering the above assessment, validation team concluded that the O&M cost considered from respective DPR in the computation of financial indicator is in conformity with additionality guideline.

F) Assessment of Tax computation:

The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision (conformity to Appendix of EB92, Annex 5). Hence, these assumptions are appropriate during decision making context

g) Cross checking parameters:

Name of the parameter	DOE assessment
Project Cost	The project cost has been considered from DPR and was available at the time decision made for the project activity. The DOE has also checked the actual cost of the project activity from the EPC contract and the loan sanction letters. The actual project cost is similar to that considered from the DPR. Since the comparison is done with actual project cost and hence, increase of the same in future is not possible. Thus, the project activity is additional with actual project cost. The assessment team also checked different states tariff orders and found that project cost considered for project is found to be appropriate.

	Based on sectoral scope expert and local knowledge, the project cost considered as per DPR for the proposed project activity is found to be appropriate for wind projects. Also since the actual cost is available to DOE and IRR is still within benchmark and thus the same is acceptable. The IRR as per the assumption from the DPR is 10.44% while as per actual cost i.e. Loan Sanction letter, the same is 10.28%. As described above actual project cost with benchmark, the project is still additional. Since the comparison is done with actual project cost, the increase of the same in future is not possible. Thus assessment team is of the opinion that project is still additional with the consideration of actual project cost for the project activity.
O&M cost and Escalation in the operational expense =5(%) - Standard practice in India	The O&M cost has been considered from DPR and was available at the time decision made for the project activity. The DOE has also checked the actual O&M contract for each project site and found the changes in O&M cost is within threshold limit. Thus the project activity is additional with actual O&M cost. Even after consideration of O&M cost as zero, the project activity is additional. The assessment team also checked different states tariff orders and found that O&M cost and its escalation considered for project is found to be appropriate. Based on sectoral scope expert and local knowledge, the project O&M cost and its escalation considered as per Offer Letter for the proposed project activity is found to be appropriate for wind projects. Also since the O&M cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.
Tariff	The Tariff rate has been considered from DPR and the same was available at the time decision made for the project activity. The DOE has also checked the actual PPA for each project site and found there are no changes in tariff rate and is within threshold limit. Thus the project activity is additional with actual Tariff rate. The tariff considered is levellised tariff and hence there is no any escalation. This is found to be appropriate and found to be accepted. Since the IRR is still below benchmark with the consideration of Actual Power purchase agreement signed which is valid for total operational lifetime of the project, assessment team confirms that the project is still additional with actual Tariff rate. Based on sectoral scope expert and local knowledge, the project tariff rate considered as per state tariff order for the proposed project activity is found to be appropriate for wind projects.
PLF	The PLF has been taken from 3rd party PLF Report as well as the DPR. Validation team assessed the PLF Report & DPR. Same report has been used in the financials and the emission reduction calculation. PLF estimation by 3rd party engineering company is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team.

	The PLF has been taken from the 3rd party PLF Report, and the same has been checked and found that PLF considered for the project activity in within the range of sensitivity analysis and found to be appropriate. Based on sectoral scope expert and local knowledge, the project PLF considered as per DPR for the proposed project activity is found to be appropriate for wind projects.							
Tax Rates	<table><tr><td>Income tax rate (%)</td><td>30.00 %</td></tr><tr><td>MAT (Minimum Alternate tax) (%)</td><td>18.50 %</td></tr><tr><td>GST (%)</td><td>18.00 %</td></tr></table> The above table shows the tax rate considered for project activity and the same is found suitable. Assessment team noted that the project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country i.e. INDIA. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision. Hence, these assumptions are appropriate during decision making context and thus acceptable to the assessment team. NO further assessment is required as the Values are directly procured from Income Tax Act, 1961 which is standard guideline for Tax value in India.		Income tax rate (%)	30.00 %	MAT (Minimum Alternate tax) (%)	18.50 %	GST (%)	18.00 %
Income tax rate (%)	30.00 %							
MAT (Minimum Alternate tax) (%)	18.50 %							
GST (%)	18.00 %							

Sensitivity analysis:

The Guidance on Additionality requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified Plant Load Factor (PLF), Project cost, Electricity tariff and O&M cost as critical assumptions. These critical parameters constitute more than 20% of either total project costs or total project revenues. The sensitivity analysis reveals that even under more favourable conditions, the IRR without CDM revenue would not cross the benchmark return as given in the following table:

Variation %	-10 %	Normal	10 %	Breaching Value
PLF	7.21%	10.44%	13.87%	13.99%
O&M	10.79%	10.44%	10.08%	-177.58%
Project Cost	13.93%	10.44%	7.75%	-13.07%

Tariff Rate	7.21%	10.44%	13.87%	13.99%
-------------	-------	--------	--------	--------

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favourable conditions.

Probability to breach the benchmark:
Sensitivity Parameter 1: PLF
PLF considered in financials for is as per Third Party DPR in line with “Guidelines for the reporting and validation of Plant load factors” stated in EB48 Annex11 option 3(b) . Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data.
Sensitivity Parameter 2: O&M
The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely.
Sensitivity Parameter 3: Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The actual project cost is lower than the DPR cost. Since the Loan sanction letter cost is similar, there is no possibility of project cost going below this level. However, Sensitivity is carried out for threshold level below which benchmark is not breached.
Sensitivity Parameter 4: Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached.

Common Practice analysis:

The common practice analysis is proved by following points as per the requirement of Methodological tool “Common Practice”, version 03.1 EB84, Annex 7¹⁶:

1. Applicable Geographical Area (Para 9): The Tamil Nadu state has been considered as the applicable geographical area for this project. PP had considered the state of Tamil Nadu geo-graphical area due to regulatory regime since applicable power tariff structure for renewable energy projects is unique for all the states across national boundary of India; which is based on Electricity Act 2003 (EA 2003), section 82 which clearly mentions “Every State Government shall, within six months from the appointed date, by notification, constitute for the purposes of this Act, a Commission for the State to be known as the (name of the State) Electricity Regulatory Commission” Appropriateness of the same has been checked and confirmed from EA 2003 (<http://www.cercind.gov.in/08022007/Act-with-amendment.pdf/40/>).

Furthermore, following significant points on the State specific policy & regulatory framework on the renewable energy projects with special emphasis to Wind power projects have been validated:

- Electricity Act 2003 (EA 2003) has changed the legal and regulatory framework for the renewable energy sector in India. The EA 2003 mandates policy formulation to promote renewable sources of energy by the federal government, the State governments and the State Electricity Regulatory Commissions (=SERCs) within their jurisdictions.
- The Electricity Act 2003 introduced some enabling provisions conducive to accelerated development of grid connected renewable energy sources. Under Section 61(h), promotion of cogeneration and generation of electricity from renewable sources of energy has been made the explicit responsibility of SERCs, which are bound by law to take these considerations into account while drafting their terms and conditions for tariff regulations. Nearly all SERCs have issued their tariff regulations incorporating suitable clauses, which will enable them to provide a preferential treatment to renewable energy (RE) during the tariff determination process. The SERCs determine the tariff for all renewable energy projects across the States, and the state-owned power Distribution Companies (DISCOMs) ensure grid connectivity to the renewable energy project sites.
- EA 2003 has initiated the adoption of the National Tariff Policy, 2006 as one of the key policies, National Tariff Policy (2006) framed under the Section 3 of the EA 2003. As per the excerpt from National Tariff Policy, 2006; pursuant to provisions of section 86(1)(e) of the EA 2003, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006.
- As mandated under section 86(1)(e) of the Electricity Act (2003), by June 2012, 26 SERCs had fixed quotas (in terms of % of electricity being handled by the power utility) to procure power from renewable energy sources. The mandate, which is called a Renewable Purchase Specification (RPS), varies from 0.5% to 14% in various states over varying time-scales. Few states have come out with technology specific RPSs. Besides, the state regulators determine the tariff for all RE projects in the states and ensure connectivity to the grid through extension of power evacuation from the RE project sites.

¹⁶<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf>

- At present thirteen SERCs have declared preferential feed-in tariffs (FITs) for purchase of electricity generated from Wind power projects established in respective states, which varies from state to state in India. All the SERCs have adopted a 'cost plus' methodology to fix the feed-in tariff, which varies across the states depending upon the state resources, project cost and more importantly the tariff regulations of SERCs. Wind power related tariff policies in different states also has difference in regulatory and policy incentives. Several states have implemented fiscal and financial incentives for renewable energy generation, including; energy buy back (i.e. a guarantee from an electricity company that they will buy the renewable power produced); preferential grid connection and transportation charges and electricity tax exemptions.

Therefore the investment climate for the renewable energy projects varies from State to State within India due to state specific local policy & regulatory framework as outlined by the State Electricity Regulatory Commissions of the respective state. This difference in investment condition leads to essential distinction among Wind energy projects between different States of the host country India.

Thus, the specific geographical area i.e. state of Tamil Nadu for the common practice analysis of the proposed project activity is considered and thus the same is acceptable to the assessment team.

2. Measure (Para 10): The project activity reduces greenhouse gas emissions by generating electricity using renewable energy source-Wind. Therefore, the project activity falls under the following measure:

(b) Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies.

3. Output (Para 11): The project activity produces electricity. Therefore, electricity is considered as output of the project activity.
4. Different Technologies (Para 12): The project activity uses Wind energy for producing electricity and hence as per Para 12(a), the technologies which use energy source/ fuel other than Wind will be considered as the different technologies for the project activity.

The step wise approach to provide common practice analysis as per the guideline is as follows:

Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+50%	300	MW
Capacity of the proposed project activity	200	MW
-50%	100	MW

Since the project activity is 200MW, the output range of +/- 50% has been considered as 300 MW (Higher range for comparison) to 100 MW (Lower range for Comparison) which is assessed to be correct

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

- (a) The projects are located in the applicable geographical area;
- (b) The projects apply the same measure as the proposed project activity;
- (c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;
- (d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;
- (e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
- (f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

Identification of the similar projects¹⁷ (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

- a) As the project is located in India, therefore, the applicable geographical area is India and projects in the host country India have been chosen for analysis.
- b) The project activity is a green-field wind power project and uses measure (b) "*Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies*". Therefore, all projects applying same measure (b) as the proposed project activity are candidates for similar projects.
- c) The energy source used by the project activity is wind. Hence, only wind energy projects have been considered for analysis.
- d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.
- e) The capacity range of the projects is within the applicable capacity range from 100 MW to 300 MW.
- f) The start date of the project activity is 22/11/2017. As Kyoto Protocol was ratified by India on 26/08/2002¹⁸, therefore projects which had started commercial operation between 26/08/2002 to 22/11/2017 have been identified.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are

$$N_{\text{wind}} = 2$$

¹⁷ As per Indian Wind Power Directory 2017

¹⁸ http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php

Step (3): within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all} .

CDM project activities, which have got registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects,

$$N_{all} = 2$$

Step (4): within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff} .

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

1. Size of Installation
2. Investment climate on the date of the investment decision

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

Thus:

$$N_{diff} = 0$$

Step (5): calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Calculate $F = 1 - N_{diff}/N_{all} = 1 - (2/2) = 0$

$$N_{all} - N_{diff} = 2 - 2 = 0$$

Outcome of Step 5:

As,

- i. $F = 0$; is less than 0.2, and
- ii. $N_{all} - N_{diff} = 0$; is less than 3, thus:

The proposed project activity is not a “common practice” within a sector in the applicable geographical area.

3.9 Calculation algorithm and/or formula used to determine emission reductions

The GS4GG PDD of the project activity is checked by the assessment team and found that ACM0002 version 18.1 is used at the time of GS validation. The formula used in the GS4GG PDD was used for the calculation of emission reduction and same is found to be correct. Hence emission reduction calculation at this time of validation is conservative and appropriate.

Assessment team checked that Formula used to calculate the net emission reduction for the project activity is

$$ER_y = BE_y - PE_y$$

Where,

ER_y = Emission Reduction in tCO₂/year

BE_y = Baseline emission in tCO₂/year

PE_y = Project emissions in tCO₂/year

Baseline Emissions:

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (t CO₂/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (t CO₂/MWh)

The project activity is the installation of windmills and it is a green field project. So the formula in option (a) i.e., greenfield plants is used to calculate the value of $EG_{PJ,y}$. In accordance with para 46 of the applied methodology:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

$$BE_y = 613,844 \text{ tCO}_2 \text{ per annum}$$

Project Emission

As per the ACM0002 ver 18.1, Project Emission for most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = Project emissions in year y (tCO₂e/yr)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/yr)

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non condensable gases in year y (tCO₂e/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/yr).

The project activity involves the generation of electricity from the installation of wind turbines. Hence, as per ACM0002, Version 18.1, there is no project emission for windmill projects. Therefore, project emissions are zero.

Hence,

$ER_y = BE_y = 613,844$ tCO₂ per annum

Project Participant	Capacity	PLF (%)	Generated Power (MWh/year)	Baseline Emission Factor (tCO ₂ /MWh)	Baseline emissions (tCO ₂ / year)
Orange Sironj Wind Power Pvt. Ltd.	200 MW	36.3%	635,976	0.9652	613,844

SDG 13 Climate Action

Year	Baseline estimate	Project estimate	Net benefit
Year 1	613,844 tCO ₂	0 tCO ₂	613,844 tCO ₂
Year 2	613,844 tCO ₂	0 tCO ₂	613,844 tCO ₂
Year 3	613,844 tCO ₂	0 tCO ₂	613,844 tCO ₂
Year 4	613,844 tCO ₂	0 tCO ₂	613,844 tCO ₂
Year 5	613,844 tCO ₂	0 tCO ₂	613,844 tCO ₂
Total	3,069,220 tCO ₂	0 tCO ₂	3,069,220 tCO ₂
Total number of crediting years			

Annual average over the crediting period	613,844 tCO2	0 tCO2	613,844 tCO2
--	--------------	--------	--------------

SDG 7: Affordable and Clean Energy

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 MWh	635,976 MWh	635,976 MWh
Year 2	0 MWh	635,976 MWh	635,976 MWh
Year 3	0 MWh	635,976 MWh	635,976 MWh
Year 4	0 MWh	635,976 MWh	635,976 MWh
Year 5	0 MWh	635,976 MWh	635,976 MWh
Total	0 MWh	3,179,880 MWh	3,179,880 MWh
Total number of crediting years			
Annual average over the crediting period	0 MWh	635,976 MWh	635,976 MWh

SDG 8: Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 2	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 3	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 4	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs

Year 5	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Total	0 Training, 0 Jobs	5 Trainings, 75 Jobs	5 Trainings, 75 Jobs
Total number of crediting years			
Annual average over the crediting period	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs

4. REFERENCE

S. No.	Document /Evidence /Reference /Weblink, Version, Date
1.	Initial GS4GG PDD, version 01 dated 29/01/2018 Final GS4GG PDD, version 04 dated 07/08/2019
2.	Minutes of Meeting for Local Stakeholders' Consultation
3.	Emission Reduction Sheet for the project activity dated 29/01/2018 Revised Emission reduction sheet dated 25/07/2018 IRR sheet for financial analysis dated 25/07/2018
4	Methodology: ACM0002 version 18.1
5	Standard: CDM Project Standard Version 01
6	Standard: CDM Validation & Verification Standard Version 01
7	Procedure: CDM Project Cycle Procedure Version 01
8	Tools: • Tool to calculate the emission factor for an electricity system, Version 7.0
9	GS4GG guideline
10.	Stakeholders consultation process in CDM-PDD
11.	Training Records of project staff at site
12.	Declaration for non-receiving of ODA for project dated 19/07/2018 Declaration of not participating in any other GHG mechanism dated 19/07/2018
13.	Universal declaration of Human Rights http://mha.nic.in/Human_Rights_Division
14.	Ministry of Labor http://labour.gov.in/upload/uploadfiles/files/footergallery_pdf/List%20ofILO%20Conventions%20Ratified%20by%20India.pdf
15	National Prevention of Corruption Act of Government of India http://www.persmin.gov.in/DOPT/EmployeesCorner/Acts_Rules/PCAct/pcact.pdf
16	Ministry of Environment and Forest http://moef.nic.in/division/environment-protection
17	Minutes of Meeting for Stakeholders' Feedback Meeting
18	Emails sent to NGO, Stakeholders, villagers for stakeholder feedback round
19	UNFCCC Website for CDM mechanism– http://cdm.unfccc.int/

20	HR employment records of the project staff on site
21	Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects Ministry of New and Renewable Energy (MNRE) , September 2013

5. FINAL PROJECT DESIGN CERTIFICATION STATEMENT

Applus+Certification has performed a validation of the “200 MW Wind Power Project in Tamil Nadu by Orange Sironj”. The validation was performed on the basis of UNFCCC criteria CDM Validation and Verification Standard version 01.0 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 GS4GG PDD version 2 and the subsequent follow-up interviews has provided Applus+ Certification 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 Applus+ Certification 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 613,844 tCO₂e per year.

The validation has been performed following the requirements of the latest version of the CDM CDM Validation and Verification Standard version 01.0 for the project activity, Gold Standard 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 SD 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.

Date: 11/09/2018

Lead Auditor: Mr. Sukanta Das

Tech. Expert: Mr. Sukanta Das

Tech. Reviewer: Mr. Denny Xue

Approver (*Applus+ Certification Business Unit Managing Director*)

Mr. Juan Sendín Caballero

ASSESSMENT TEAM	
Team Leader SUKANTA DAS	Technical Reviewer: DENNY XUE
Signature: 	Signature: 
Approver: Mr. Juan Sendín Caballero	
Signature: 	

Appendix 1: Corrective Action Request / Clarification Request / Forward Action Request resolution table

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	01
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	A.3, A.5
Description of the audit finding		Date:	02/07/2018
- As per section A.3 the legal rights of the project participant needs to be justify. The same is missing in the GS4GG PDD. - In section A.5 the technical details are mentioned however the supporting documents for technical details of the WTGs is not submitted to the assessment team. - As GS pre-review changes been made in section A.5 of the PDD, however following are the observation of the DOE: SDG 3: Good Health and Well-Being: It is mentioned that health Camps are organized every year. The details of the same is missing in the PDD and supporting are not submitted to the assessment team. SDG4. Quality Education: It is mentioned that training on agricultural, irrigation and fertilizers techniques by agricultural professionals will be conducted. Approximately 100 students are benefitted annually. The supporting documents regarding the same is not submitted to the assessment team SDG 6: Clean Water and Sanitation: It is mentioned that Distribution of water purifiers with cooler and Laying of water pipe lines will take place. It is expected that a minimum of 100 persons would be benefitted annually. The basis on arriving the 100 persons figure and supporting for the same is not submitted to the assessment team. SDG 8: Decent Work and Economic Growth: It is mentioned that the project provides employment to around 15 persons. The project leads to Trainings & workshops which are conducted for the O&M staff of Gamesa as well as for the O&M staff of the PP. The basis on arriving the 15 persons figure and supporting for the same is not submitted to the assessment team. Besides the “Number of jobs created”, the PP shall also clarify as how it was verified that the employees have been paid fairly in line with the corresponding indicator “SDG 8” - The PP shall note that SDG 3, 4, 6 and 15 were not approved as part of the GS4GG Transition; hence these SDGs shall be removed from the documentation wherever applicable. Please also put appropriate SDGs related to project activity.			

Project Participant's response	Date:	
1. The EPC Contract, CTE from pollution control board and the Power Purchase Agreement clearly mention that the project participant has legal rights and same is mentioned in the revised section A.3. 2. The supporting documents for technical details of the WTGs are now submitted to the assessment team. 3. Since the Project is not commissioned yet, the SDGs 3, 4 and 6 have been deleted from the revised PDD. Besides, in the SDG 8 'Decent Work and Economic Growth' it is mentioned that the project employs around 15 people which was based on the capacity of the PA i.e. 200 MW, the actual data will be provided once the project is commissioned. Further the management system of Siemens Gamesa, O&M is in accordance with ISO14001 standard, quality management in accordance with the ISO 9001 standard and health and safety management in accordance with the OHSAS 18001 standard hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report O&M contractor¹⁹. Moreover the Project provides fairly paid employment to the workers on the site. The sustainability report and the salary slips are provided to the assessment team. 4. SDG 3, 4, 6 and 15 have been removed from the PDD to be consistent with GS4GG Transition report. Remaining SDGs are the direct benefit for the development due to the project activity.		
Documentation provided as evidence by Project Participant		
1. Revised GS PD 2. CTE from PCB 3. EPC Contract 4. Technical details		
Auditor's assessment comment	Date:	25/08/2018
Following are the observation of the DOE:		

¹⁹ <https://www.siemensgamesa.com/-/media/siemensgamesa/downloads/en/sustainability/informe-de-sostenibilidad-2017-en.ashx>

1. Assessment team checked the EPC Contract, CTE from pollution control board and the Power Purchase Agreement which mention that the project participant has legal rights and same is mentioned in the revised section A.3. Thus, CAR is closed.
2. The technical details of the WTGs are checked and found correct. CAR is thus closed.
3. SDG 3, 4 and 6 are now removed from the revised GS4GG PDD version 02. For SDG8 'Decent Work and Economic Growth' it is mentioned that the project employs around 15 people which was based on the capacity of the PA i.e. 200 MW, the actual data will be provided once the project is commissioned. Further the management system of Siemens Gamesa, O&M is in accordance with ISO14001 standard, quality management in accordance with the ISO 9001 standard and health and safety management in accordance with the OHSAS 18001 standard hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report O&M contractor²⁰. Moreover the Project provides fairly paid employment to the workers on the site. The sustainability report and the salary slips are checked and found correct by the assessment team.
4. **SDG 3, 4, 6 and 15** have been removed from the PDD to be consistent with GS4GG Transition report. Remaining SDGs are the direct benefit for the development due to the project activity

Type:	☒ CAR	☐ CL/CR	☐ FAR	Number:	02
Raised by:	Mr. Sukanta Das			Ref. to checklist in GS4GG PDD:	A.6 , A.7 and A.8
Description of the audit finding				Date:	02/07/2018
- In section A.6 justification of the scale is not referred to relevant activity requirement. The same is not done and thus corrective action is sought - In section A.7 it is mentioned that no ODA fund is received for the project. The supporting of the same is missing. - In section A.8 India is party to “Convention on the Elimination of All Forms of Discrimination against Women²¹” and the project has aligned its policies which does not discriminate on gender. The supporting policies documents for the same is not submitted to the assessment team.					

²⁰ <https://www.siemensgamesa.com/-/media/siemensgamesa/downloads/en/sustainability/informe-de-sostenibilidad-2017-en.ashx>

²¹ <http://hrlibrary.umn.edu/research/ratification-india.html>

- Section A.8 mentions that since the project is applying retroactively for GS registration, a Stakeholder Feedback round **would be carried** out accordingly. The supporting documents are missing and thus this section is reserved till then.
- The explanation regarding Gender Equality and Women's Rights" is missing in section A.8. Section D.1 as referred in the PDD only mentions that measures would be taken or has taken but how the objective would be achieved is not clear. Corrective action is sought.

Project Participant's response	Date:	
• The justification of the scale has been explained in the revised section of PDD as per the definition of small and large scale project activity i.e. the Project activity is 200 MW i.e. more than 15 MW hence it is large scale project activity. • Annex D – Official Development Assistance declaration Annex D has been submitted now. • Orange renewable has policies which clearly mentions that the Project is not discriminating between gender. The policies are been submitted for assessment; hence the project is aligned with existing country policy "Convention on the Elimination of All Forms of Discrimination against Women" (link is provided for reference). • TheStakeholder Feedback round has been carried out dated 09-May-2018 at Tutticorin, Tamil Nadu. The supporting documents of SFR have been submitted to DOE. • The Gender Equality and Women's Rights" is explained on the basis of gender assessment questions in the revised Section A.8 of the PDD version 02.		
Documentation provided as evidence by Project Participant		
1. ODA 2. CSR Policy 3. Leave Policy, Domestic Travel Policy and Attendance Policy 4. SFR MOM Including Feedback, Attendance sheet and Photographs. 5. Grievance Procedure		
Auditor's assessment comment	Date:	25/08/2018
Following are the observation of the DOE: 1. The large scale explanation is now provided in the revised PDD. CAR is thus closed 2. ODA letter is now submitted. CAR is thus closed		

3. The project is aligned with existing country policy “Convention on the Elimination of All Forms of Discrimination against Women” (link is provided for reference). CAR is thus closed.
4. The Stakeholder Feedback round has been carried out dated 09-May-2018 at Tutticorin, Tamil Nadu. The supporting's are checked and found correct. CAR is thus closed.
5. Section A.8 is now revised. CAR is thus closed.

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	03
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	GS4GG PDD
Description of the audit finding	Date: 02/07/2018		
The latest methodology available on UN web site for ACM0002 is version 18.1 while PP used Version 17. Kindly justify the same. The applicability, baseline, additionality and monitoring is not as per the latest version of ACM0002.			
Project Participant's response	Date:		
The latest methodology available on UN web site for ACM0002 is version 18.1 has been updated throughout the revised PDD version 02.			
Documentation provided as evidence by Project Participant			
Revised GS PD			
Auditor's assessment comment	Date: 25/08/2018		
The latest applicable methodology available on UN website is used for the present project activity. The latest methodology available on UN web site for ACM0002 is version 18.1 has been updated throughout the revised PDD version 02. CAR is thus closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	04
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	B.5
Description of the audit finding		Date:	02/07/2018
Following observation is noticed by DOE for the additionality assessment: 1. PP used Tool for the demonstration and assessment of additionality”, Version 07.0.0 to describe additionality however all the steps are not followed. For example Step 0,1 are missing in the PDD 2. The discussion regarding not choosing Option II i.e. Investment analysis is missing in the PDD 3. The supporting documents for input assumptions are not submitted to the assessment team. IRR is thus reserved 4. IRR sheet is also not submitted to the assessment team. Additionality assessment is reserved 5. The common practice analysis is performed however no supporting are submitted to the assessment team. For example in step 3 of the text it is written that “The list of the power plants identified is provided to the DOE”. No such documents received. Also, in other steps the values should be backed by proper documents and supporting. Corrective action is sought.			
Project Participant's response		Date:	
1. All the steps of additionality are now clearly explained in section B.5 of the revised version of the PDD. 2. The discussion regarding not choosing Option II has been incorporated in the revised PD. 3. DPR for the input Assumptions are now submitted to the assessment team. 4. IRR sheet along with the list of the power plants identified is provided to the DOE. 5. Supporting sheet for common Practice analysis is also provided to the DOE. The PDD has also been revised to include proper documents and supporting.			
Documentation provided as evidence by Project Participant			
List of power plants for Common practice analysis WTG manufacturer specifications			

DPR		
IRR Sheet		
Revised GS PD Ver 2.0		
Auditor's assessment comment	Date:	25/08/2018
Following are the observation of the DOE: The steps of Additionality are now clearly mentioned in the revised PDD. CAR is thus closed Option II discussion is now added in the revised PDD. CAR is thus closed. IRR sheet is checked and found correct Common practice analysis sheet is checked and found correct.		

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	05
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	B.6.1, B.6.2 and B.6.5
Description of the audit finding	Date:	02/07/2018	
1. The supporting's to the indicator mentioned relevant to SDG is missing. Corrective action is sought for the same. 2. CSR policy is not submitted to the assessment team. Corrective action is sought for the same 3. As per SDG 8: Decent Work and Economic Growth : The project leads to Trainings & workshops which are conducted for the O&M staff of Gamesa as well as for the O&M staff of the PP, by their respective companies. Apart from other trainings/workshops that may be organized, the following are also carried out; • HSE Training Record • Soft Skill Training (The supporting's are missing). 4. As per GS4GG revised guideline the renewable CP is 7 years however section B.6.5 only mentions 5 years data. Kindly clarify/correct 5. The basis for baseline estimate and project estimate in Section B.6.5 is missing.			
Project Participant's response	Date:		

1. SDG 3, 4 and 6 is deleted from the report and SDG 7,8 and 13 are direct benefits of the project activity. The supporting documents of SDG 7,8 and 13 are Generation statement provided by SECI every month, Training Records (HSE & HR) & Employee feedback forms and CO2 Baseline Database for Indian Power Sector respectively²².
2. CSR policy²³ is provided to DOE now.
3. SDG 8 'Decent Work and Economic Growth' it is mentioned that the project will employ around 15 people which was based on the ongoing project of Orange, the actual data will be provided once the project is commissioned.

Further the management system of Siemens Gamesa,

- Gamesa O & M is in accordance with ISO14001 standard,
- Quality management in accordance with the ISO 9001 standard and
- Health and safety management in accordance with the OHSAS 18001 standard.

All the certificates are provided to the DOE. Hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report.

Further it is expected that a minimum of 1 training (either of the above) would be carried out annually and the Project have HSE policy which covers HSE training. HSE policy is submitted to the DOE.

4. As per GS4GG guideline the renewable CP is 5 years. The revised guideline is for projects in transition from previous version to GS4GG.
5. The baseline estimate and project estimate has been incorporated in the revised Section B.6.5 of the GSPD.

Documentation provided as evidence by Project Participant

HSE policy

Revised GS PD

CSR policy

²²http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf

²³<http://orangerenewable.net/download/OrangeRenewable-CSR-Policy.pdf>

Auditor's assessment comment	Date:	25/08/2018
Following are the observation of the DOE: - SDG 3, 4 and 6 is deleted from the report and SDG 7,8 and 13 are direct benefits of the project activity. The supporting documents of SDG 7, 8 and 13 are Generation statement provided by SECI every month, Training Records (HSE & HR) & Employee feedback forms and CO2 Baseline Database for Indian Power Sector respectively²⁴. CAR is thus closed - CSR policy is now checked and found correct. CAR is thus closed - The training records are checked and found correct. All the certificates are checked by the DOE. Hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report. Further it is expected that a minimum of 1 training (either of the above) would be carried out annually and the Project have HSE policy which covers HSE training. HSE policy is checked and found correct. - As per GS4GG guideline the renewable CP is 5 years. The revised guideline is for projects in transition from previous version to GS4GG. - The baseline estimate and project estimate has been incorporated in the revised Section B.6.5 of the GSPD.		

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	06
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	B.7.1
Description of the audit finding		Date:	02/07/2018
The supporting documents related to Data and parameters to be monitored is not submitted to assessment team. For example CSR records, trainings & workshops that are given to the respective O&M staffs by Gamesa or PP. • HSE Training Record • Soft Skill Training Corrective action is sought for the same.			
Project Participant's response		Date:	

²⁴http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf

The O&M manager is Seimens Gamesa and Gamesa O & M is in accordance with ISO14001 standard, Quality management in accordance with the ISO 9001 standard and Health and safety management in accordance with the OHSAS 18001 standard.

Hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report.

Further it is expected that a minimum of 1 training (either of the above) would be carried out annually and the Project have HSE policy which covers HSE training; other training are mentioned on the basis of the trainings provided in the ongoing projects of the participant. HSE policy is submitted to the DOE.

Documentation provided as evidence by Project Participant

HSE Policy

Sustainability Report by E&Y

Auditor's assessment comment

Date:

25/08/2018

The O&M manager is Seimens Gamesa and Gamesa O & M is in accordance with ISO14001 standard, Quality management in accordance with the ISO 9001 standard and Health and safety management in accordance with the OHSAS 18001 standard.

Hence according to the policies of the standards, the employees are provided dedicated trainings which is also in line with the sustainability report. Further it is expected that a minimum of 1 training (either of the above) would be carried out annually and the Project have HSE policy which covers HSE training. HSE policy is checked and found correct. CAR is thus closed.

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	07
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	C.1
Description of the audit finding		Date:	02/07/2018

The start date of the project needs to be described as per the requirement of section 3.4.3 of GS4GG Principles & Requirements document and supporting also needs to be submitted. Neither the explanation provided in the PDD nor the supporting is submitted. Corrective action is sought for the same.

Project Participant's response	Date:	
The start date of the project as based on the signed EPC contract between Orange Sironj Wind Power Pvt Ltd. and Seimens Gamesa Renewable power Pvt Ltd. EPC is submitted to the DOE for assessment.		
Documentation provided as evidence by Project Participant		
EPC contract Revised PD		
Auditor's assessment comment	Date:	25/08/2018
The start date is considered as per the PO released to WTG supplier which is as per the definition of start date as GS4GG. The revision is done in the PDD> CAR is thus closed.		

Type:	☒ CAR	☐ CL/CR	☐ FAR	Number:	08
Raised by:	Mr. Sukanta Das			Ref. to checklist in GS4GG PDD:	D.1
Description of the audit finding				Date:	02/07/2018
1. As per section 3.4.3 it is mentioned that the proponent obtained necessary clearances from nodal agencies and NOC from all the Gram Panchayets for establishing the plant. Moreover, the project has all the legal, customary rights on the land. No such evidences submitted to assessment team. 2. As per section 3.2 the project proponent has a stipulated HR policy that takes into account participation by both men and women. Further, the CSR projects designed are implemented for equal participation of both men and women. No such evidences submitted to assessment team.					

3. As per section 4.2.1, the project activity has developed activities for prevention of soil erosion by various landscaping measures. No such evidences submitted to assessment team.
4. As per section 4.3.5, the project during operational phase uses various type of oil/lubricants, grease which are classified as hazardous. These waste are handled in line with hazardous waste management rules and are disposed of accordingly. Supporting evidences missing.—14001certificate of the region and consent to operate.

Project Participant's response	Date:	
1. The proponent obtained necessary prior approval from Power Grid Corporation of India for establishing the plant and the Govt of India, Central Electricity Authority for construction of transmission line; the documents are submitted now and the land legal documents have been submitted to the assessment team. PDD is revised. 2. PP has submitted CSR policies along with various other policies which mention that there is no gender discrimination in the project activity. In CSR Policy of Orange renewable point 3 of 'Scope of activities to be undertaken by CSR committee' mentions that "Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups". The PD is revised accordingly. 3. The project is under construction phase hence no effect on soil conditions because it has no waste coming out. Please refer page 21, table 8 of report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013²⁵. 4. The O & M, Seimens Gamesa Wind Power pvt Ltd. is ISO 14001 certified; also the HSE policy have been submitted which ensures that any harmful consequence generated by the project will be disposed off or mitigated for the Health, Safety and Environment of the employees, local stakeholders and the society.		
Documentation provided as evidence by Project Participant		
1. Intimation for Grant of connectivity from Power Grid Corporation of India dated 25/01/2017 (Stage -I). 2. Intimation for Grant of connectivity from Power Grid Corporation of India dated 13/07/2018 (Stage -II). 3. Prior approval of the government of India for construction of 230 Kv Transmission line.		
Auditor's assessment comment	Date:	25/08/2018

²⁵<https://mnre.gov.in/file-manager/UserFiles/report-on-developmental-impacts-of-RE.pdf>

The proponent obtained necessary prior approval from Power Grid Corporation of India for establishing the plant and the Govt of India, Central Electricity Authority for construction of transmission line; the documents are submitted now and the land legal documents have been checked by the assessment team. CAR is thus closed.

PP has submitted CSR policies along with various other policies which mention that there is no gender discrimination in the project activity. In CSR Policy of Orange renewable point 3 of 'Scope of activities to be undertaken by CSR committee' mentions that "Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups". CAR is closed

The project is under construction phase hence no effect on soil conditions because it has no waste coming out. Please refer page 21, table 8 of report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013²⁶. CAR is thus closed.

The O & M, Seimens Gamesa Wind Power Pvt Ltd. is ISO 14001 certified; also the HSE policy have been submitted which ensures that any harmful consequence generated by the project will be disposed off or mitigated for the Health, Safety and Environment of the employees, local stakeholders and the society. CAR is thus closed.

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	09
Raised by:	Mr. Sukanta Das	Ref. to checklist in GS4GG PDD:	E
Description of the audit finding	Date: 02/07/2018		
Section E is reserved till the submission of Local stakeholder consultation documents. Corrective action is sought for the same in the PDD.			
Project Participant's response	Date:		
The Local stakeholder consultation documents have been submitted to the assessment team now.			
Documentation provided as evidence by Project Participant			
SFR Documents			
Auditor's assessment comment	Date: 25/08/2018		

²⁶<https://mnre.gov.in/file-manager/UserFiles/report-on-developmental-impacts-of-RE.pdf>

The local stakeholder documents are checked and found correct. CAR is thus closed.

Appendix 2: Audit Team CVs

Name	SHORT CV. BACKGROUND INFORMATION
Mr. Sukanta Das	Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than Nine (9) years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.
Mr. Denny Xue	Hanshen (Denny) Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.