

250 MW WIND POWER PROJECT BY MYTRAH ENERGY



Document Prepared By Earthood Services Private Limited

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Prepared By	Earthood Services Pvt. Ltd.
Contact	Regd. Office: 424-A, Tower B3, Spaze I-Tech Park, Sector 49, Sohna Road, Gurgaon-122018, INDIA Tel: +91 124 4204599 Fax: +91 124 4204599 Website: www.earthood.in Email: info@earthood.in
Approved By	Technical Reviewer: Anshika Gupta Technical Expert (TA 1.2): Anshika Gupta
Work Carried Out By	Team Leader: Pankaj Kumar Technical Expert (TA 1.2) and Meth Expert: Pankaj Kumar Financial Expert: Ashok K Gautam Local Expert: Pankaj Kumar

Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by Mytrah Vayu (Sabarmati) Private Limited (Project proponent) to conduct the validation and verification of the project - "250 MW Wind Power Project by Mytrah Energy" (VCS pipeline ID- PL2020), with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 3.7, VCS and VCS program guide version 3.7). Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for validation and verification.

The monitoring period covers under this verification are from 30/01/2019 to 30/11/2019.

The verification includes confirming the implementation of the monitoring plan of the validated VCS joint PD and MR (Pipeline ID- 2020) and the application of the monitoring methodology as per ACM0002 Version 19 – "Grid connected renewable electricity generation".

The purpose of this project activity is to generate electricity using renewable sources (wind) and supplying the same to grid and signed PPA with Power Trading Corporation India Ltd. This is renewable energy generation which can replace the fossil fuel dominated grid connected electricity generation.

The project proponent has applied the baseline and monitoring methodology ACM0002, Version 19.0: "Grid connected electricity generation from renewable source".

The project activity involves the installation of 105 WTGs of capacity 2 MW each at Kadambur, Kuppanapuram, Ottarampatti, Vandanam, Kayathar, Akhilanapuram and Paneerkulam village in Tuticorin District, TamilNadu, India, reaching a total installed capacity of 250¹ MW. These WTGs are of GE make, 2.4 MW rated capacity.

This project activity involves generation of electricity from WTGs and supplying the generated electricity to the grid and signed PPA with PTC India Limited, Govt. of India. It is to be noted that the electricity generated by project activity is being pooled through Tamil Nadu state distribution & transmission network, which is part of the Southern grid (Now part of integrated Indian Grid).

The proposed project activity is a Green field project which results in an estimated GHG emission reduction of 506,370 tCO₂ annually. The power generated by the project will be replacing the equivalent amount of electricity from the southern Grid system of India, which is dominated by fossil fuel based grid connected power plants.

A risk-based approach has been followed to perform this joint validation and verification activity. In the course of verification, 05 Corrective Action requests (CARs) and 05 Clarification Requests (CLs), 00

¹ The installed capacity of the project considering 105 WTG comes out to be 252 MW, however PP has signed PPA of 250 MW with SEB and thus billing is being done as per the limit specified in the PPA only, as the generation is being capped upto 250 MW. The excess power is being utilized as captive consumption and hence for emission reduction purpose also a total installed capacity has been considered to be of 250 MW.

Forward action request (FARs) were raised and successfully closed. The review of the Monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and project owners have provided ESPL with sufficient evidence to verify the fulfillment of the stated criteria of VCS.

Validation & Verification Conclusion:

The conclusions of this report show, that the project, as it was described in the joint project description and monitoring report, is in line with all criteria applicable for the validation and verification. This validation and verification is based on the information made available to ESPL and the engagement conditions are detailed in this report. No restrictions or uncertainties were identified related to the validation and verification.

ESPL confirms that the project is implemented in accordance with the validated VCS joint PD & MR^{/02/}. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 506,370 tCO₂e during period 30/01/2019 to 30/11/2019

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited has been appointed by “**Mytrah Vayu Sabarmati Pvt Ltd**” to perform the validation and verification of the project entitled “250 MW Wind Power Project by Mytrah Energy” in Tamilnadu under VCS standard and guideline version 3.7. The objective of this joint validation& verification activity is to have an independent third party for the assessment of the project design, ER sheet and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- the project's baseline is assessed against “ACM0002- Version 19.0”
- the project's monitoring plan is assessed against “ACM0002- Version 19.0”
- the projects compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard version 3.7
- CDM Validation and Verification Standard for project activities version 02
- CDM Project Standard for project activities version 02
- CDM project cycle procedure for project activities version 02
- VCS standard v3.7²
- VCS guideline v3.7

Validation& verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of estimated verified emission reductions (VERs).

²<http://www.v-c-s.org/project/vcs-program/rules-and-requirements/>

1.2 Scope and Criteria

For validation:

The validation scope is given as an independent and objective review of the project design, which are included in the VCS joint PD & MR and other relevant supporting documents.

The scope of work covered in the validation is described below:

- To validate whether the project activity meets the requirements of VCS Standard Version 3.7, VCS Validation and Verification Manual version 3.1 and VCS program guide 3.7.
- To confirm that the information presented are completed, consistent, transparent and free of omission or material error
- Background investigation and follow up interviews
- Issuance of draft validation report with CARs, CRs & FARs, if any
- Final validation opinion

The information in the VCS joint PD & MR is reviewed against the criteria of VCS Standard 3.7, the VCS program guide 3.7.

ESPL has performed validation based on a risk based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate Verified Carbon Units (VCUs).

For Verification:

The scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from “250 MW Wind Power Project by Mytrah Energy” The verification of this project was based on the VCS joint project description & monitoring report, version 02 and supporting documents submitted by the project proponent to the verification team. The documents were reviewed against the following guidance and protocols:

- VCS Standard: Version 3.7
- Applied baseline methodology ACM0002 Version 19, “Grid connected renewable electricity generation”.
- VCS Program Guide, Version 3.7
- ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006

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

1.3 Level of Assurance

The Joint validation & verification has been planned and organized to achieve a

☒ Reasonable level of assurance

☐ Limited level of assurance.

1.4 Summary Description of the Project

This project activity involves generation of electricity from WTGs and supplying the generated electricity to the Southern grid of India. The project, located at villages in Kadambur, Kuppanapuram, Ottarampatti, Vandanam, Kavathar, Akhilandapuram and Paneerkulam, in Tuticorin District of Tamil Nadu state in India, has an installed capacity of 250 MW .

During the 10 years of first crediting period, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 506,370 tCO₂e per year, thereon displacing 540,531 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant.

The details of the projects and their location of installation are mentioned in the table below:

Name of Investor	Capacity (MW)	Village(s)	District	State
Mytrah Vayu (Sabarmati) Pvt. Ltd.	250 MW	Kadambur, Kuppanapuram, Ottarampatti, Vandanam, Kayathar, Akhilandapuram & Paneerkulam	Tuticorin	Tamil Nadu

During the Current Monitoring Period from 30/01/2019 to 30/11/2019 (First and last date included) the project activity contributed to the GHG reductions 289,425 tCO₂e.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Validation and Verification Scope: The scope is defined as an independent and objective review of the Joint project design document and Monitoring report. The Joint VCS PD and MR is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board and VCS standard and guideline version 3.7, including the approved baseline and monitoring methodology ACM0002- Version 19.0 (for the present scenario in the project). The validation and verification were based on the

requirements in the Validation and Verification Standard for project activities version 02, project standard for project activities version 02, project cycle procedure for project activities version 02 and VCS guideline and standard version 3.7.

The validation and verification are 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 combined project document and the Monitoring report.

Validation and Verification Process: The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities version 02 and VCS standard and guideline version 3.7 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 VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out:

- I A desk review of the Joint project design documentation and monitoring report;
- II Follow-up interviews with project stakeholders;
- III The resolution of outstanding issues and the issuance of the final Joint –VAL & VER report and opinion.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. ESPL has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating/verifying the identified criteria.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, ESPL has composed a project assessment team in accordance with the appointment rules in the internal Quality Management ESPL.

The composition of audit team shall be approved by the ESPL 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
Pankaj Kumar	LA/TE	YES	YES	YES	YES

	TR	YES	YES	YES	NA
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The complete list of CVs is included as Appendix 3 of this report

2.2 Document Review

The validation team has conducted the joint validation & verification using the VCS Standard and the ACM0002 version 19.0. methodology as the reference criteria. The validation team had done the completeness check of joint VCS PD & MR submitted by the PP as per the VCS standard Version 3.7 requirements was reviewed. Furthermore, a desk review was also carried out to assess the following:

- Information of project details in compliance with VCS PD & MR
- Appropriateness of methodology ACM0002 version 19.0. applied to the project activity
- Compliance with relevant laws and regulations
- Correctness of application of baseline and monitoring methodology
- Demonstration of additionality
- Monitoring plan described in the VCS PD & MR
- Stakeholder consultation
- Proof of listing of project under pipeline
- Calculation of grid emission factor, etc. where applicable.
- Actual Emission reduction calculations

The VCS PD & MR version 01 dated 11/11/2019 was initially reviewed and the PP requested to submit the revised documents along with the supporting information and documents. The revised documents and additional supporting documents were further assessed by the validation team. During the Joint validation & verification process, the revised VCS PD & MR, ver. 02 and the supporting documents were assessed to confirm the actions taken by the PP to the CARs and CLs issued.

The validation team has reviewed the final version of the VCS PD & MR Version 02 dated 20/12/2019 to confirm that all changes agreed have been incorporated.

Further, prior to the onsite visit, it was verified by the validation team that the project was listed in the VCS pipeline in line with the requirements (Section 3, Registration and Issuance process, version 3.8) Ref: https://www.vcsprojectdatabase.org/#/pipeline_details/PL2020

2.3 Interviews

The assessment team has carried out interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirements. Before and during the on-site visit, the assessment team has interviewed the representatives of the PP to confirm selected information and to clarify issues identified during the document review. Representatives of the PP and O&M contractor were also

interviewed. The names and designations of the personnel interviewed are mentioned in section 2.4 below:

The main topics covered during the interview are as follows:

- General Aspects of the project
- Project Implementation
- Equipment and operation
- Staff Training procedures
- Calibration procedures
- Monitoring & Measuring System
- Data collection, recording and archiving procedure
- QA/QC procedures
- VCS documentation
- Emission reduction calculations

2.4 Site Inspections

As part of the validation & verification, an on-site inspection has not been performed by the assessment team. However, the representatives of the PP and O&M contractors were interviewed on 19/12/2019 i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed and the topics discussed are mentioned in the table below:

Name	Organization	Topic covered
Mr. Rahul Kumar	Mytrah Vayu (Sabarmati) Pvt. Ltd.	Project implementation, start date as per the VCS requirements. Electricity Generation Records (monthly energy statements, Invoices) Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure
Mr. Murugesan P	PP Representative	Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations.
Mr. Shirish Navlekar	Mytrah Energy (India) Pvt. Ltd.	Monitoring and measuring system • Collection of measurements • Observations of established practices • Data Verification of monitoring parameters QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices.

2.5 Resolution of Findings

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

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

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

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

The validation process may be halted until this information has been made available to the team leader's satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR. No CL has been raised during the validation of the project activity.

During the validation and verification process, total 05 CARs and 05 CL were raised and resolved satisfactorily. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix 2 of this report

2.5.1 Forward Action Requests

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

No FAR has been raised during the validation and verification of the project activity.

3 VALIDATION FINDINGS

3.1 Project Details

The main purpose of this project activity is to generate clean form of electricity through renewable energy sources. The project activity involves installation of combined capacity of 250 MW Wind power projects in the state i.e. Tamilnadu India. The project aims at providing electricity to the state grid by effective utilization of renewable resources. The electricity generated from the project activity would be supplied to the national grid of India.

The Project activity is a new facility (Greenfield) and the electricity generated by the project will be exported to the Indian electricity grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the project.

During the 10 years of first crediting period, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 506,370 tCO₂e per year, there on displacing 540,531 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant.

Details of the capacity & installation dates are mentioned in Section 1.4 above.

The technical specifications of project activity are as below:

The Company is using GE make, 2.4 MW rated capacity WEC having rotor diameter of 116 meters and hub height of 94 Meters, at Tamil Nadu. The technical specification document of the WTG is being submitted to the DOE. The technical specifications given below:

Rotor	
Maximum Power Output	2400 kW
Diameter	116 m
Number of blades	3
Swept area	10,568 m ²
Rated wind speed	11 m/s
Rotor speed range	7.67 to 15.68 rpm
Rotational direction	Clockwise looking downwind
Tip speed @ rated power	85.4 m/s
Orientation	Upwind
Speed regulation	Pitch Control
Aerodynamics brakes	Full feathering

Project proponent and other entities involved in the project-

The project activity is developed by Mytrah Vayu (Sabarmati) Private Limited.

Mytrah Vayu (Sabarmati) Private Limited. is the project proponent and M/s EKI Energy Services Limited is other entity involved in the project activity.

Project start date-

The project start date is 30/01/2019. This was commissioning date commissioning of first phase of the Project activity (128.79 MW).

Project crediting period-

The crediting period of the project activity is for 10 years (renewable). The first crediting period is from 30/01/2019 to 29/01/2029.

Project scale and estimated GHG emission reductions or removals-

The estimated annual emission reductions for the project activity are 506,370 tCO₂e which is more than 300,000 tCO₂e. Hence the category is applicable under "Large project".

Project location-

The wind power project is located in Tuticorin district of Tamil Nadu, India.

Name of Investor	Capacity (MW)	Village(s)	District	State
Mytrah Vayu (Sabarmati) Pvt. Ltd.	250 MW	Kadambur, Kuppanapuram, Ottarampatti, Vandanam, Kayathar, Akhilandapuram & Paneerkulam	Tuticorin	Tamil Nadu

Geo-coordinates of the project location are verified as:

SL. No	Name of Investor	Location Name		
			Latitude	Longitude
1	M/s Mytrah Vayu (Sabarmati) Pvt. Ltd.	MAN-322	8° 58' 04.93"	77° 55' 00.64"
2		MAN-321	8° 58' 24.09"	77° 55' 22.36"
3		MAN -222	8° 57' 49.51"	77° 54' 36.21"
4		MAN-215	8° 57' 04.03"	77° 53' 07.05"
5		MAN-323	8° 57' 30.49"	77° 53' 08.89"
6		MAN-199	8° 59' 57.17"	77° 52' 43.33"
7		MAN-324	8° 56' 59.21"	77° 52' 17.266"
8		MAN-197	9° 00' 44.43"	77° 52' 05.52"
9		MAN-319	8° 59' 53.26"	77° 54' 48.26"
10		MAN-196	9° 01' 06.79"	77° 52' 15.16"
11		MAN-328	9° 01' 42.51"	77° 53' 41.77"
12		MAN-326	9° 00' 17.87"	77° 54' 37.53"
13		MAN-320	8° 58' 43.03"	77° 54' 41.61"
14		MAN-353	8° 57' 22.58"	77° 54' 40.81"
15		MAN-380	8° 57' 31.83"	77° 54' 14.29"
16		MAN-311	9° 01' 24.09"	77° 53' 43.03"
17		MAN-312	9° 01' 53.19"	77° 54' 49.58"
18		MAN-349	9° 03' 04.87"	77° 55' 21.34"
19		MAN-361	9° 02' 49.37"	77° 56' 49.38"
20		MAN-379	9° 01' 40.26"	77° 52' 27.36"
21		MAN-350	9° 02' 45.455"	77° 55' 46.40"
22		MAN-362	9° 03' 10.15"	77° 56' 09.18"
23		MAN-345	9° 02' 24.90"	77° 55' 26.67"
24		MAN-305	9° 02' 15.08"	77° 51' 55.31"
25		MAN-340	9° 00' 53.28"	77° 56' 03.52"
26		MAN-378	9° 05' 18.50"	77° 56' 46.48"
27		MAN-304	9° 02' 32.51"	77° 51' 27.31"
28		MAN-377	9° 03' 59.32"	77° 57' 18.22"
29		MAN 356	9° 01' 06.19"	77° 57' 49.32"
30		MAN-366	9° 04' 34.66"	77° 55' 26.91"
31		MAN 314	9° 01' 20.72"	77° 57' 46.01"
32		MAN-159	8° 59' 46.60"	77° 49' 42.66"
33		MAN-161	9° 00' 26.84"	77° 49' 03.72"
34		MAN-160	9° 00' 12.76"	77° 49' 41.56"
35		MAN-415	8° 58' 58.96"	77° 50' 49.62"

36		MAN-412	8° 58' 28.65"	77° 50' 15.30"
37		MAN-417	8° 58' 16.30"	77° 50' 39.34"
38		MAN-388	8° 57' 13.89"	77° 47' 52.29"
39		MAN-146	8° 59' 53.96"	77° 48' 37.98"
40		MAN-280	8° 58' 57.03"	77° 47' 35.55"
41		MAN-297	9° 02' 00.42"	77° 49' 53.49"
42		MAN-189	9° 01' 11.35"	77° 51' 03.61"
43		MAN-185	9° 00' 54.47"	77° 50' 21.21"
44		MAN-184	9° 00' 32.44"	77° 50' 27.81"
45		MAN-299	9° 01' 52.73"	77° 50' 58.57"
46		MAN-301	8° 58' 19.75"	77° 46' 48.29"
47		MAN 351	9° 02' 01.39"	77° 57' 35.38"
48		MAN 194	9° 01' 59.33"	77° 52' 34.78"
49		MAN 437	9° 02' 18.69"	77° 56' 27.38"
50		MAN 370	9° 04' 14.19"	77° 56' 41.50"
51		MAN 341	9° 01' 20.09"	77° 56' 01.65"
52		MAN 416	8° 58' 30.61"	77° 51' 13.21"
53		MAN 405	8° 59' 22.95"	77° 49' 34.56"
54		MAN-201	8° 58' 59.80"	77° 51' 36.21"
55		MAN-444	8° 56' 44.56"	77° 50' 17.04"
56		MAN 398	8° 56' 30.02"	77° 50' 08.32"
57		MAN-483	8° 59' 28.03"	77° 47' 21.78"
58		MAN-486	8° 59' 54.90"	77° 47' 24.90"
59		MAN-485	8° 59' 42.49"	77° 47' 57.16"
60		MAN-480	8° 58' 09.42"	77° 47' 16.54"
61		MAN-481	8° 58' 25.50"	77° 47' 06.75"
62		MAN-443	9° 01' 12.22"	77° 49' 11.56"
63		MAN 162	9° 00' 41.42"	77° 48' 29.02
64		MAN-127	9° 01' 34.55"	77° 49' 55.41"
65		MAN 126	9° 01' 48.64"	77° 49' 54.15"
66		MAN-494	9° 02' 02.97"	77° 50' 29.70"
67		MAN-497	9° 01' 01.99"	77° 48' 30.88"
68		MAN-17	8° 50' 24.87"	77° 53' 28.09"
69		MAN-24	8° 49' 27.46"	77° 54' 15.25"
70		MAN-22	8° 50' 35.38"	77° 54' 09.83"
71		MAN-255	8° 47' 46.68"	77° 49' 24.71"
72		MAN-253	8° 47' 11.41"	77° 49' 48.05"
73		MAN-26	8° 48' 49.65"	77° 53' 27.41"
74		MAN-55	8° 51' 19.15"	77° 52' 42.76"
75		MAN-16	8° 50' 33.64"	77° 52' 55.62"
76		MAN-79	8° 50' 21.64"	77° 48' 48.32"
77		MAN-490	8° 49' 58.53"	77° 50' 20.022"
78		MAN-20	8° 48' 56.29"	77° 52' 57.64"

79		MAN-03	8° 46' 42.12"	77° 51' 11.26"
80		MAN-04	8° 46' 20.45"	77° 51' 21.36"
81		MAN-11	8° 49' 49.58"	77° 52' 29.67"
82		MAN-02	8° 48' 32.40"	77° 50' 59.91"
83		MAN 05	8° 46' 10.74"	77° 50' 53.70"
84		MAN 82	8° 47' 02.26"	77° 51' 32.44"
85		MAN 258	8° 48' 50.75"	77° 48' 59.17"
86		MAN 264	8° 49' 22.98"	77° 51' 50.30"
87		MAN 19	8° 49' 43.94"	77° 53' 13.25"
88		MAN 115	8° 50' 08.55"	77° 54' 35.45"
89		MAN 12	8° 49' 25.81"	77° 52' 28.67"
90		MAN 13	8° 49' 05.67"	77° 52' 16.91"
91		MAN 18	8° 49' 07.25"	77° 54' 00.83"
92		MAN 10	8° 50' 14.01"	77° 54' 05.67"
93		MAN 15	8° 50' 54.31"	77° 53' 19.72"
94		MAN 498	8° 45' 50.84"	77° 50' 44.16"
95		MAN 499	8° 46' 23.84"	77° 51' 59.74"
96		MAN-158	8° 59' 34.14"	77° 49' 09.56"
97		MAN-125	8° 57' 53.07"	77° 46' 41.11"
98		MAN-136	9° 00' 17.13"	77° 47' 53.96"
99		MAN-491	9° 02' 30.79"	77° 53' 51.52"
100		MAN-492	9° 02' 19.48"	77° 53' 09.58"
101		MAN-488	9° 00' 24.42"	77° 51' 32.88"
102		MAN-493	9° 00' 52.89"	77° 50' 57.94"
103		MAN-355	8° 58' 03.78"	77° 48' 57.02"
104		MAN-500	8° 54' 35.50"	77° 49' 39.38"
105		MAN-501	8° 54' 09.24"	77° 50' 10.31"

Conditions prior to project initiation-

The project is a Greenfield wind power project and does not involve generation of GHG emissions for the purpose of their subsequent reduction, removal or destruction. Prior to the initiation of the project activity, the equivalent amount of electricity would have been drawn from grid connected or new power plants, in Indian Grid. The grid is predominantly fossil fuel based and therefore is a major source of carbon dioxide emissions in India. The main emission in the pre project scenario is the power plants connected to the Indian Grid, and main GHG involved is CO₂. The JOINT VCS PD & MR, ver.02 contains clear and information for electricity generation in pre project scenario.

Project compliance with applicable laws, statutes and other regulatory frameworks:

The project is a voluntary initiative by the project proponent and has not been implemented to meet any local / national laws or regulatory compliances. The project activity is in compliance with current laws and regulations and there are no legal and/or regulatory requirements that prevent the project implementation. Also the validation team has confirmed that there is no such compliance requirement with an emission trading program or any binding limits on GHG emissions for the project activity in India (host country) as it is a non-annex 1 country. The project has obtained necessary approval for the installation and operation from the state nodal agencies and is in compliance with local laws and regulations.

Ownership and other programs-**Right of use**

The project activity is owned by Mytrah Vayu (Sabarmati) Private Limited. The ownership of the project activity is verified through the following documents:

- Commissioning certificate
- Purchase order issued by the PP to technology supplier

Emissions trading programs and other binding limits

The project is not participating in other emission trading programs. The letter of undertaking^{9/} has been furnished by project participant confirming that net GHG emission reductions or removals generated by the project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions.

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

The project seeking registration under the VCS (Pipeline ID- PL2020) and not listed under Domestic REC mechanism³ as verified from <https://recregistryindia.nic.in/index.php/publics/index>

³ https://recregistryindia.nic.in/index.php/publics/accrued_regens

Participation under other GHG programs:

Project is seeking registration under VCS only (Pipeline ID- PL2020). The PP has submitted the declaration^{/9/} which states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period.

Rejection by other GHG programs:

The project has not been rejected by other GHG programs.

Additional information relevant to the project, including:

- **Eligibility criteria for grouped projects**

The project activity is not a grouped project, hence not applicable to the project activity.

- **Leakage management for AFOLU projects**

Not applicable to the project activity.

- **Commercially sensitive information**

No commercially sensitive information has been excluded from the public version of the project description.

Sustainable Development**Contribution to sustainable development:**

Ministry of Environment & Forests & Climate Change, Govt. of India has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. Assessment team found that the project contributes to sustainable development using the following ways.

Social well-being: The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.

Economic well-being: The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits the project activity will also help to reduce the demand supply gap in the state.

The project activity will generate power using zero emissions wind based power generation which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities.

Technological well-being: The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects.

Environmental well-being: Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions.

Project undergone continuous operation and only scheduled maintenance as per the manufacturer specification is considered. No unforeseen incident observed for the present monitoring period

Conclusion:

In view of the assessment of JOINT VCS PD & MR and supporting documents as listed in Appendix 1 of this report, the validation team is able to confirm that the description contained in the JOINT VCS PD & MR of the project activity provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. Consequently, **ESPL** confirms that the project description of the project contained in the JOINT VCS PD & MR^{/02/} to be complete and accurate. The JOINT VCS PD & MR complies with the relevant forms and guidance for completing the JOINT VCS PD & MR.

3.2 Participation under Other GHG Programs

The project has neither been registered nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program. Audit team checked the REC Mechanism database of India and found that the project activity is not accredited / registered under REC mechanism. Further, declaration for the same is checked and found correct by the assessment team. Also assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. <https://www.recregistryindia.nic.in/>
2. <http://cdm.unfccc.int/>
3. <http://www.goldstandard.org/>

Rejection by other GHG programs

The Project is not rejected by other GHG programs. A declaration for the same is checked and found correct by the assessment team. Also assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. <https://www.recregistryindia.nic.in/>
2. <http://cdm.unfccc.int/>
3. <http://www.goldstandard.org/>
4. www.v-c-s.org

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

Renewable energy certificates are available for trading in the host country. However, the same is not available by the project participant. The undertaking regarding the same is submitted by PP which is acceptable to the assessment team and assessment team also checked the REC web site (<https://recregistryindia.nic.in/>) and found the declaration to be correct.

3.3 Application of Methodology

3.3.1 Title and Reference

Title : Grid-connected electricity generation from renewable sources

Reference : The project activity meets the eligibility criteria of large scale project as it is more than 15 MW

Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 19.0⁴

Type I : Energy industries (renewable / non-renewable sources)

Category : Approved Consolidated Methodology (ACM0002)

Tools referred with above methodology and applicable for project activity are:

- Tool to calculate the emission factor for an electricity system⁵ - Version 07.0 (EB 100, Annex 04)
- Methodological Tool- Tool for the demonstration and assessment of additionality⁶ - Version 07.0.0 (EB 70, Annex 08)

3.3.2 Applicability

The applied baseline methodology is justified as it has been demonstrated that the proposed project activity is:

Applicability 1: The project activity is a Renewable Energy Project i.e. Wind Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.

Applicability 2: The proposed project activity is an installation of a new grid connected wind power plant and hence this condition is met. The option (a) of applicability criteria 2 is applicable as project is renewable energy power plant/unit.

⁴ <https://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ>

⁵ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

⁶ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

Applicability 3: The project is installation of new wind energy-based electricity generation plants (not a hydro power plant). Hence this criteria is not applicable.

Applicability 4: The project is wind power project and thus the criterion is not applicable to this project activity.

Applicability 5: The project is wind power project and thus the criterion is not applicable to this project activity.

Applicability 6: The project is wind power project and thus the criterion is not applicable to this project activity.

Applicability 7: Please refer below

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

- OM, BM and CM are estimated using the tool 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 for calculating baseline emissions.
- The project activity is located in India, a non-Annex I country. Therefore, tool is applicable for the project activity.
- The project is a wind power project and there is no involvement of biofuels. Therefore, this criterion is not applicable for the project activity.
- ESPL 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 19.0 is applicable to the project activity.

The project activity qualifies as Type I during every year of the crediting period in accordance with applicable provisions for project activity eligibility as discussed above. Also, the total installed capacity of project activity is more than 15 MW which is applicable as per large scale project activities methodology ACM0002- Version 19.0. The project capacity will be always remain the same and hence the project activity will always be large scale project activities throughout the crediting period and thereafter

3.3.3 Project Boundary

Project boundary has been ascertained and confirmed during the site visit using ACM0002- Version 19.0 – “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to”.

Hence the project boundary includes the renewable energy power generation, sub-stations, grid and all power plants connected to grid. The proposed project activity will evacuate power to the grid. The boundary also extends to the project power plant and all power plants connected physically to the electricity system that the VCS project power plant is connected to”.

The calculation of net electricity supplied to grid is under purview of state electricity board and project activity Owner or project activity Implementer does not have any control on it. Thus, for project activity, net electricity supplied to grid is the monitoring parameter which is used for ER calculations.

It is to be noted that metering arrangement is under control of state electricity board and PP does not have any control on it.

The sources and GHG gases involved for proposed Project activity are as below

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation.	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
		Other	No	No other emissions are emitted from the project
Project	Greenfield Wind 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
		Other	No	Project activity does not emit other forms of GHG emissions

3.3.4 Baseline Scenario

Assessment team confirms that being a grid connected Wind energy generation project, PP developed the project based on the Methodology ACM0002- Version 19.0. As per methodology *if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:*

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”.

As per CDM Validation and Verification Standard for project activities version 02, “where the baseline scenario is not prescribed in the approved methodology, the DOE shall assess the list of identified credible alternatives to the project activity in the JOINT VCS PD & MR selected to determine the most realistic baseline scenario.” Thus, JOINT VCS PD & MR should mention the credible alternatives to the project activity in order to determine the most realistic baseline scenario. As the selected large-scale methodology clearly mention the baseline scenario and the same has been opted in this project, therefore, no further analysis on baseline is required.

Validation Team, therefore, concludes that the JOINT VCS PD & MR conforms to the guidance given by EB via CDM Validation and Verification Standard for project activities version 02 and VCS via VCS standard version 3.7.

The project activity involves setting up 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.

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

Central electricity authority (CEA) database version 14 is the latest available data at the time of JOINT VCS PD & MR 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}	0.9368 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 14.0, December 2018 published by Central Electricity Authority (CEA), Government of India
EF _{grid,OM,y}	0.9610 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (2015-16, 2016-17 & 2017-18) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 14.0, December 2018 published by Central Electricity Authority (CEA), Government of India
EF _{grid,BM,y}	0.8644 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 14.0, December 2018 published by Central Electricity Authority (CEA), Government of India

Moreover, Annex 3 of the EB 22 states that national and/or sectoral policies and circumstances have to be accounted for when considering the baseline scenario. Paragraph 7(a) states that, only those national and/or sectoral policies or regulations under paragraph 6(a), i.e., type E+ policy that increase GHG emissions, that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11/12/1997), shall be taken into account when developing a baseline scenario. The Electricity Act of 2003 promoted cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity (Refer Section 86(1) of Electricity Act 2003). Therefore, it could be seen that the provincial and sectoral policies are E- i.e., policies that decrease GHG emissions and are after November 2001. Hence the baseline scenario of electricity generation by grid connected fossil fuel dominated power plants is in accordance with Annex 3 of EB 22.

Assessment team thus confirmed that baseline is selected as per the applied methodology and combined margin is calculated as per the tool and thus acceptable to the assessment team.

3.3.5 Additionality

During conceptualization of the project activity, board of directors of the project proponents considered the VCS revenue to improve the project financials. During the board meeting for board of Directors decided that they would consider VCS revenue for their project activity. The Board resolution has been checked for the same. In continuation to the board decision, PP issued the respective purchase order for the supply of Solar Panels. The detail of project commission is as follows:

Name of Investor	Capacity in MW	COD	Connection with Grid	State	Usage
Mytrah Vayu (Sabarmati) Pvt. Ltd.	128.79 MW	30/01/2019	Indian Grid	Tamil Nadu	Sale to State DISCOMs
	58.32 MW	16/04/2019			
	62.89 MW	11/05/2019			

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

Alternative 1: The proposed project activity without VCS 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 solar 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 solar 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. As per Central Pollution Control Board (Ministry of Environment, Forests & Climate Change, Govt. of India), final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (29/02/2016).

Being a renewable power project it falls under the category of White and thus these projects 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-VCS 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 for project activities, version 02. In the Initial Joint VCS PD & MR 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 thus acceptable to the assessment team. Assessment team however checked the Equity IRR calculation and found that input assumptions used for the calculation of Equity IRR are applicable at the time of investment decision of the project and thus is in accordance with the relevant guideline of the tool.

According to the “Tool for demonstration and assessment of Additionality”, the financial indicator can be based either on (1) project IRR or (2) equity IRR. There is no general preference between the approaches (1) or (2). The benchmark chosen for analysis shall be fully consistent with the choice of approach. Therefore in accordance with the guidance, the relevant financial indicator for project activity has been chosen as post tax equity IRR.

As per paragraph 7 of Appendix A of the above mentioned document, "In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used".

The investment analysis has been carried out in Nominal terms. Accordingly, Default value has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India).

PP has calculated Benchmark based on WPI mean inflation rate. As per Para 17 of Appendix of EB101, Annex 11, the inflation forecast should be for the duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 10 years durations and the same is considered as Benchmark for the project activity.

The benchmark has been computed in the following manner:

$$\text{Nominal Benchmark}^7 = \{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$$

Where,

Real Benchmark = 9.79% (as per Appendix of EB 101, Annex 11)

Inflation rate = Projected Inflation Rate for India in next 10 years (RBI Forecast)

Benchmark estimation:

At the time of decision made of project activity, Version 07 of methodological tool "Investment Analysis" (version 7 & 8) were the latest available tools to the PP at the time of decision making. However, the request for registration for Version 7 could be submitted till 31/10/2017 and for version 8 the registration request could be submitted till 28/11/2018. Hence, PP has used Methodological Tool for Investment Analysis version 09⁸ (EB 101, Annex 11). Upon comparison of the detail of version 07.0, 08.0 and version 09.0 of the methodological tools it was observed that, there is no major difference in the versions except for the change of default value for benchmark calculation. The default value as mentioned in version 07 was 11.06% for the group 1 projects in India, in the version 08 it was 10.73% for group 1 project in India and Value as mentioned in version 09 is 9.79% for group 1 project in India which is clearly more conservative than version 07 & 08 values. Hence, version 09 is used which is appropriate and more conservative for benchmark calculation and PP has considered the same tool for default value of return on equity for the respective SPVs. The default value of Return on Equity for Group-1 projects in India is 9.79 % as per EB 101, Annex 11.

⁷As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

⁸ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

Appendix in EB 101, Annex 11 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = **9.79 %**

Benchmark Calculations	Value	Sources Link	Document Date	Decision making Date
Default Value for India as per UNFCCC guidelines	9.79%	EB 101 Annex 11	29-11-2018	25-05-2017
Inflation forecast (WPI Mean) as per RBI for 10yrs	4.00%	https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=17458	06-04-2017	
Benchmark (with 10yrs Forecast)	14.18%	Calculated		

Thus, benchmark of **14.18 %** has been selected for this project activity.

b) Parameters and assumptions used:

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 Joint VCS PD& MR Version 02, the project cost is based on the DPR. The details of the DPR are as below:

Project cost as per the DPR & CA Certificate

Site Name	Name of the Investor/Owner/SPV	Capacity (MW)	DPR Date	Actual Project Cost (In Million)	Project Cost (In Million) As per CA certificate	As on date in CA Certificate
Tuticorin	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	23-05-2017	18900	19264.1	31-08-2019

DPR has been submitted to validation team. The DPR was available during decision making and financial profitability of the project was decided based on this offer letter. Validation team checked the DPR of the project activity and found that consideration of the project cost in revised Joint VCS PD& MR Version 02 is correct and it is in line with Appendix of Methodological tool "Investment Analysis" Version 09 as well as in compliance to CDM Validation and Verification Standard for project activities version 02. Hence, the project cost consideration is justified. Assessment team checked the actual project cost and still the project do not breach the benchmark. The sensitivity analysis below confirms the same. Since the actual cost is considered there is no way the cost can go up and thus the same is assessed to be correct.

In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30. 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 70:30. Assessment team checked the order for the respective state regarding ratio of debt and equity which was available at the time of investment decision and found that the ratio of Debt to equity was considered correctly for the present validation condition.

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.

c) Assessment of Plant Load Factor (PLF):

PP considered the Plant load factor as per TERC Tariff order on Wind Energy⁹

PLF as per TERC Tariff order and actual generation

Site Name	Name of the Investor/Owner/SPV	Capacity (MW)	Actual PLF (%) as per TERC Tariff order	PLF(%) as per DPR
Tuticorin	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	27.15 %	34.7%

D) Assessment of Electricity Tariff:

Tariff rate as per DPR and actual electricity invoices

Site Name	Name of the Investor/Owner/SPV	Capacity (MW)	Tariff Rate (as per DPR)	Tariff Rate (as per electricity invoices)
Tuticorin	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	3.46	3.46

Validation team assessed the tariff and found that same value was available during decision making and in conformity with guidance Appendix of Methodological tool “Investment Analysis” Version 09. Furthermore, assessment team has also checked the actual tariff as mentioned in electricity invoices. IRR is still below benchmark with the consideration of PPA signed which is valid for total operational lifetime of the project.

e) Assessment of O& M cost:

O&M as per Detailed Project Report and O&M Contract signed

Site Name	Name of the Investor/Owner/SPV	Capacity (MW)	DPR Date	O&M (In Million) (Without tax)	O&M (In Million) (Without tax) as per Contract
Tuticorin	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	23-05-2017	84	26.25

The DPR has been used in the financial calculation as same was available during decision making and hence applicable. According to Appendix of Methodological tool “Investment Analysis” Version 09, 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

⁹ <http://www.tnecr.gov.in/orders/Tariff%20Order%202009/2016/Wind/Wind%20-%203%20of%202016.pdf>

considered from respective DPR in the computation of financial indicator is in conformity with guidance Appendix of Methodological tool "Investment Analysis" Version 09.

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 EB 85, Annex 12). 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.																				
	IRR value as per the assumptions from the DPR is as below:																				
	<table><tr><th>Name of the Investor/Owner/SPV</th><th>Project Capacity (MW)</th><th>Project Cost (In Million)</th><th>IRR</th><th>Benchmark</th><th>Breaching Value</th><th>DPR Date</th></tr><tr><td>Mytrah Vayu (Sabarmati) Pvt. Ltd.</td><td>250</td><td>18900</td><td>6.67%</td><td>14.18%</td><td>-25.54%</td><td>23-05-2017</td></tr></table>							Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost (In Million)	IRR	Benchmark	Breaching Value	DPR Date	Mytrah Vayu (Sabarmati) Pvt. Ltd.	250	18900	6.67%	14.18%	-25.54%	23-05-2017
	Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost (In Million)	IRR	Benchmark	Breaching Value	DPR Date														
	Mytrah Vayu (Sabarmati) Pvt. Ltd.	250	18900	6.67%	14.18%	-25.54%	23-05-2017														
The assessment team also checked the respective state tariff orders and found that Project Cost considered for project is found to be appropriate.																					
The DOE has also checked the actual cost of the Project site from CA Certificate each project and found that the reduction in project cost is within the range of sensitivity analysis. 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.																					
	<table><tr><th>Name of the Investor/Owner/SPV</th><th>Project Capacity (MW)</th><th>CERC Project Cost (In Million) As per CA Certificate</th><th>IRR</th><th>Benchmark</th><th colspan="2">As on Date in CA Certificate</th></tr><tr><td>Mytrah Vayu (Sabarmati) Pvt. Ltd</td><td>250</td><td>19264.1</td><td>6.30%</td><td>14.18%</td><td colspan="2">31-08-2019</td></tr></table>							Name of the Investor/Owner/SPV	Project Capacity (MW)	CERC Project Cost (In Million) As per CA Certificate	IRR	Benchmark	As on Date in CA Certificate		Mytrah Vayu (Sabarmati) Pvt. Ltd	250	19264.1	6.30%	14.18%	31-08-2019	
	Name of the Investor/Owner/SPV	Project Capacity (MW)	CERC Project Cost (In Million) As per CA Certificate	IRR	Benchmark	As on Date in CA Certificate															
	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	19264.1	6.30%	14.18%	31-08-2019															
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 projects. Also since the actual cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.																					
O&M cost and Escalation	The O&M cost and its escalation has been considered from Detailed Project Report and was available at the time decision made for the project activity.																				

in the operational expense =5(%)-Standard practice in India

IRR value as per the assumptions from the DPR is as below:

Name of the Investor/Owner/SPV	Project Capacity (MW)	O&M (In Million)	IRR	Benchmark	Breaching Value	DPR Date
Mytrah Vayu (Sabarmati) Pvt. Ltd.	250	84	6.67%	14.18%	-1033.35%	23-05-2017

The assessment team also checked the respective state tariff orders and found that O&M cost and its escalation considered for project is found to be appropriate.

The DOE has also checked the actual O&M contract for each project and found that IRR values at the actual O&M value is within threshold limit. Thus, the project activity is still additional with actual O&M Value.

Name of the Investor/Owner/SPV	Project Capacity (MW)	O&M Cost (In Million) as	IRR	Benchmark	O&M Contact Date
Mytrah Vayu (Sabarmati) Pvt. Ltd.	250	26.25	7.19%	14.18%	02-06-2017

Based on sectoral scope expert and local knowledge, the project O&M cost and its escalation considered as per DPR for the proposed project activity is found to be appropriate for 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 Detailed Project Report which was available at the time decision made for the project activity

IRR value as per the assumptions from the DPR is as below:

Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per DPR	IRR	Benchmark	Breaching Value	DPR Order Date
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	3.46	6.67%	14.18%	33.11%	23-05-2017

The DOE has cross checked the Power Purchase Agreement found there are no changes in tariff rate and is within threshold limit. Thus, the project activity is additional with actual Tariff rate.

Name of the Investor/Owner/SPV	Project Capacity (MW)	Tariff Rate as per PPA	IRR	Benchmark	PPA Date
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	3.46	6.67%	14.18%	21-07-2017

Since the Actual Tariff rate is available to DOE and IRR is still within benchmark thus the same is acceptable

PLF	The PLF has been taken from the DPR as per the TERC Tariff order.																				
	Validation team assessed the PLF Report and found that PLF estimation value as per report has been used in the financials and the emission reduction calculation. PLF estimation value has been checked and found that PLF considered for the project activity in within the range of sensitivity analysis and found to be appropriate.																				
	IRR for PLF value as per TERC order																				
	<table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>PLF (%)</th><th>IRR</th><th>Benchma rk</th><th>Breaching Value</th><th>DPR Date</th></tr><tr><td>Mytrah Vayu (Sabarmati) Pvt. Ltd</td><td>250</td><td>27.15%</td><td>6.67%</td><td>14.18%</td><td>33.11%</td><td>23-05-2017</td></tr></table>							Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchma rk	Breaching Value	DPR Date	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	27.15%	6.67%	14.18%	33.11%	23-05-2017
	Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchma rk	Breaching Value	DPR Date														
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	27.15%	6.67%	14.18%	33.11%	23-05-2017															
PLF value as per the DPR																					
<table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>PLF (%)</th><th>IRR</th><th>Benchm ark</th><th>Breaching Value</th><th>DPR Date</th></tr><tr><td>Mytrah Vayu (Sabarmati) Pvt. Ltd</td><td>250</td><td>34.7%</td><td>12.94%</td><td>14.18%</td><td>4.14%</td><td>23-05-2017</td></tr></table>							Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchm ark	Breaching Value	DPR Date	Mytrah Vayu (Sabarmati) Pvt. Ltd	250	34.7%	12.94%	14.18%	4.14%	23-05-2017	
Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchm ark	Breaching Value	DPR Date															
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	34.7%	12.94%	14.18%	4.14%	23-05-2017															
Tax Rates	<table><tr><td>Income tax rate (%)</td><td>39.944%</td></tr><tr><td>MAT (Minimum Alternate tax) (%)</td><td>38.44%</td></tr><tr><td>GST (%)</td><td>18.72%</td></tr></table> The above table shows the tax rate considered for individual project Owner 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 (%)	39.944%	MAT (Minimum Alternate tax) (%)	38.44%	GST (%)	18.72%								
Income tax rate (%)	39.944%																				
MAT (Minimum Alternate tax) (%)	38.44%																				
GST (%)	18.72%																				

Assessment team also confirmed the breaching values for individual parameters (=Individual project owners) and thus confirms that the project is still additional

Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost as per DPR	Actual Project Cost	Variation in Project Cost	Breaching Value
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	18900	19264.1	1.9%	-25.54%

Name of the Investor/Owner/SPV	Project Capacity (MW)	O&M Cost as per DPR	O&M Cost as per Contract	Variation in O&M Cost	Breaching Value
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	84	26.25	68.75%	-1033.35%

Name of the Investor/Owner/SPV	Project Capacity (MW)	Tariff Rate as per DPR	Actual Tariff Rate from Electricity Invoices	Variation in Tariff Rate	Breaching Value
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	3.46	3.46	0%	33.11%

Name of the Investor/Owner/SPV	Project Capacity (MW)	PLF as per DPR	PLF as per actual generation	Variation in PLF	Breaching Value
Mytrah Vayu (Sabarmati) Pvt. Ltd	250	27.15%	34.7%	27.81%	33.11%

Sensitivity analysis:

The Guidance on Appendix of Methodological tool “Investment Analysis” Version 09 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:

For Mytrah Vayu (Sabarmati) Pvt. Ltd

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	4.68%	6.67%	8.85%	33.11%
O&M	6.75%	6.67%	6.60%	-1033.35%
Project Cost	9.28%	6.67%	4.92%	-25.54%
Tariff Rate	4.68%	6.67%	8.85%	33.11%

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.

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 7¹⁰:

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 as 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

¹⁰<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf>

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 solar 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)/ 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 01/04/2006.
- As mandated under section 86(1)(e) of the Electricity Act (2003), by 26/06/2012 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.

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 solar 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-solar. 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 solar energy for producing electricity and hence as per Para 12(a), the technologies which use energy source/ fuel other than solar 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:

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB84, Annex 7:

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%	375	MW
Capacity of the proposed project activity	250	MW
-50%	125	MW

Since the project activity is 250 MW, the output range of +/- 50% has been considered as 375 MW (Higher range for comparison) to 125 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:

- a) Assessment team noted that as the projects are located in Tamil Nadu state of India, therefore, projects in the geographical area of Madhya Pradesh have been chosen for analysis. Each state have

different policies regarding renewable energy, hence, Tamil Nadu state is considered as geographical region for common practise analysis. The distinction from choosing the state to entire geographical boundary is already explained above in the report and thus the applied geographical area is acceptable to the assessment team.

b) Assessment team noted that the project activity is a green-field solar 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, projects applying same measure (b) are candidates for similar projects.

c) Assessment team confirms during the site visit that the energy source used by the project activity is solar. Hence, only solar energy projects have been considered for analysis.

d) Assessment team confirms during the site visit that the project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.

e) Since the project activity is 250 MW, the output range of +/- 50% has been considered as 375 MW (Higher range for comparison) to 125 MW (Lower range for Comparison) which is assessed to be correct

f) The start date of the project activity is 30/01/2019. Therefore projects, which have started commercial operation before 30/01/2019, have been considered for analysis.

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

$$N_{\text{wind}} = 3$$

DoE confirmed that number of Similar projects, which fulfil above-mentioned conditions, have been identified from the list of State wise wind power projects from WIND POWER DIRECTORY 2017.

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} .

As per the requirement of step 3, CDM project activities, which have got registered or are under validation have been excluded in this step. After excluding the registered and under validation projects the total number of projects is 0. The source of check for the same is cdm.unfccc.int

$$N_{\text{all}} = 0$$

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 – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on this criteria, there are no any different technology project out of similar identified projects.

2. Investment climate on the date of the investment decision –For proposed project activity, there are no any different technology project considered out of similar identified projects.

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

$$N_{diff} = 0$$

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 $F = 1 - N_{diff}/N_{all}$

$$F = 1 - (0/0) = 1$$

As per methodological tool “common practice” version 03.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

Outcome of Common Practise analysis:

b. Ai. $F = 1$; is greater than 0.2

ii. $N_{all} - N_{diff} = 0$; is not greater than 3

The project activity does not satisfy second condition. Hence, project activity is not a common practice.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

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

The above discussions show that solar power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional. Thus common practice analysis is acceptable to assessment team.

3.3.6 Quantification of GHG Emission Reductions and Removals

The quantification methods for GHG emission reductions and removals generated by the project are identified as per the steps prescribed in the applied methodology and tools, wherever relevant. The calculations are included in separate worksheet^{4/}. These are also included in the joint VCS PD & MR along with the relevant sources. All the input values used in ex ante emission reductions have been validated from the relevant source and described under relevant parameter, wherever appropriate. The steps included in the ER sheet^{4/} were reproducible and found complying the prescription of applied methodology and tool.

Baseline Emissions

The calculation of baseline emissions are conducted a separate sheet^{/4/} in clear manner that includes all relevant steps as specified in the applied methodology^{/3/}. The project activity has the baseline emissions on account of electricity generation only. This was found conservative and complying with the applied methodology.

Project Emissions

As per the approved consolidated ACM0002 version 19.0: "For most renewable energy power generation project activities, $PE_y = 0$.

As the project activity is the installation of a new grid-connected Wind Power plant and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, $PE_y = 0$.

Therefore, in the opinion of validation team, the project emission calculations are justified.

Leakage

The leakages are not applicable in the context of project and validated baseline scenario.

Parameters available at validation	Assessment
$EF_{grid,OM,y}$ Operating margin CO₂ emission factor for the project electricity system in year y	$EF_{grid,OM,y} = (0.9610 \text{ tCO}_2/\text{MWh})$ = Operating Margin emissions factor for grid connected power generation in year y calculated using the latest version of “Tool to calculate the emission factor for an electricity system version 07.” $EF_{grid,OM,y}$ is computed using the Simple Operating margin CO₂ emission factor. Simple Operating margin CO₂ emission factor is calculated from 3-year generation weighted average using data for the years 2015-16, 2016-17 & 2017-18 CO₂ emissions per unit net electricity generation of all power plants serving the system, not including low-cost / must-run. This is in agreement with the guidance provided in the Tool to calculate the emission factor for an electricity system. The value is considered from CEA CO₂ Baseline Database, version 14^{14/}. The value is fixed ex-ante for the entire duration of crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required.
$EF_{grid,BM,y}$ Build margin CO₂ emission factor for the project electricity system in year y	$EF_{grid,BM,y} = (0.8644 \text{ tCO}_2/\text{MWh})$ Build Margin emissions factor for grid connected power generation in year y calculated using the latest version of “Tool to calculate the emission factor version 07 for an electricity system. Build margin emission factor is the generation-weighted average emission factor of all power plants <i>m</i> during the most recent year y for which generation data is available. The value is considered from CEA CO₂ Baseline Database, version 14^{14/}. The value is fixed ex-ante for the entire duration of 2nd crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required.
$EF_{grid,CM,y}$ Combined margin CO₂ emission factor for the project electricity system in year y	$EF_{grid,CM,y} (0.9126 \text{ tCO}_2/\text{MWh})$ Baseline Emission Factor for grid connected power generation in year y calculated using the latest version of “Tool to calculate the emission factor for an electricity system version 07.” Combined Margin is computed using the official data sources and is in-line with the guidance provided in the tool. The value is considered from CEA CO₂ Baseline Database, version 14^{14/}. The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25% The above weighing is as per “Tool to calculate the emission factor for

Parameters available at validation	Assessment
	an electricity system", version 07.0.0 for second crediting period. The value is fixed ex-ante for the entire duration of second crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required.

The joint VCS PD & MR includes all the parameters that are applied in the estimation of emission reductions^{/2/}.

There are no uncertainties associated with the calculation of emissions.

All estimates of the emission reductions can be replicated using the data and parameter values provided in the project description and complying with the provisions of the applied methodology^{/3/}.

The methodology and any referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals. The entire emission reduction calculations have been done in separate worksheet^{/4/} that was reviewed by the validation team and found meeting the requirements.

3.3.7 Methodology Deviations

Assessment team confirms that No methodology deviation is applicable for the present project activity.

3.3.8 Monitoring Plan

Assessment team checked the monitoring practice onsite and also checked the guideline of respective State electricity regulatory commission. The detail analysis is as below:

The parameters to be monitored are complete with respect to applied methodology and applied tools in the context of project design. These were found adequate, appropriate and consistent with methodology applied.

Parameters to be monitored	Assessment
EG _{facility,y} (MWh) Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid during the monitoring period	Net electricity supplied by the project activity is obtained from Joint Energy Meter Reading Report issued by State electricity authority which provide input values used for calculation of EG _{facility,y} = EG _{PJ,y} by the project activity and forms the basis for emission reduction calculation. Electricity export to the grid and import from the grid is metered by main and check tri-vector energy meters of 0.2s accuracy class. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and O&M

	personnel. In the event of failure of main meter, the check meter will be used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other wind farm projects. The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration will be done once in a 5 year¹¹ for all the project activity. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly, O&M contractor is responsible for monitoring of the generation data at CMS. It is reported that the data will be kept for 2 years following the end of the crediting period or till the last issuance of VERs for the project activity whichever occurs later.
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The monitoring plan as included in the Joint VCS PD & MR^{/2/} covers all the relevant monitoring parameter as required in the context of the project activity and as prescribed in the applied methodology^{/3/} and tools. The monitoring systems and responsibilities are clearly defined in the Joint VCS PD & MR^{/2/} and it gives impression to the validation team that the monitoring plan is feasible and implementable in the context of the project design. The monitoring parameters meet the minimum requirement of the applied methodology/tools in terms of measurement method, frequency and associated quality checks/ cross checks. The procedures for internal auditing and QA/QC are separately defined for each parameter, wherever applicable.

The monitoring plan has not applied sampling on any parameter and all of these are directly monitored or estimated based on monitoring methodology prescribed in applied methodology and tools, as appropriate. The organizational structure, responsibilities and competencies of the personnel that will be carrying out monitoring activities are adequately defined in the Joint VCS PD & MR^{/2/} including the policies for oversight and accountability of monitoring activities. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit^{/6/}. Relevant internal procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation).

¹¹http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

It has been included in the Joint VCS PD & MR^{2/} that all monitored data required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of VCUs, for this project activity, whichever occurs later.

3.4 Non-Permanence Risk Analysis

The project activity does not require a non-permanence risk analysis. Hence this is not applicable.

4 SAFEGUARDS

4.1 No Net Harm

There is no negative impact to any socio-economic conditions of the region due to the project activity. As per the notifications issued by Ministry of Environment, Forest & Climate Change dated 01/12/2009 (ref:<http://moef.nic.in/downloads/rules-and-regulations/3067.pdf>).

Environmental Impact Assessment for the wind projects is not required to be done. This project activity will not involve any negative environmental or socio-economic impacts, as the WTGs are installed for generation of power using wind which is a clean source of energy. Hence no mitigation measures are required.

4.2 Environmental Impact

The project activity is expected to have positive impacts and no significant adverse environmental impacts are foreseen. Since, the project activity is an electricity generation from renewable source (i.e. Solar energy) therefore no negative impact are envisaged. There is no mandatory legal requirement for carrying out an environmental impact assessment in the host country. The Ministry of Environment, Forests & Climate change (MoEFCC), Government of India (GoI) notification¹² dated 14/09/2006 regarding the requirement of Environment Impact Assessment (EIA) studies states that any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. The list includes thirty nine project activities that require EIA studies. The wind power projects are not included in this list and thus an EIA study is not required.

4.3 Local Stakeholder Consultation

As per the VCS requirements, it is necessary to invite the relevant stakeholders, prior of the validation process. Moreover, the stakeholder meeting took place prior to the start date of the project activity which fulfill the requirement of project standard for project activities version 02. The DOE checked the relevance of the dates during the validation site visit. The detail of the invitation date and stakeholder meeting date is as below:.

¹²<http://envfor.nic.in/legis/eia/so1533.pdf>

SPVs Name	Invitation Notice Date	LSHM titla and re Date
<i>Mytrah Vayu (Sabarmati) Pvt. Ltd.</i>	<i>25-07-2017</i>	<i>01-08-2017</i>

The stake holder meeting was conducted at the project site itself as below:

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), technology 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. Moreover, assessment team during the validation site visit also noted that a grievance register is also put onsite for the stakeholder to comment on any grievances during the operation lifetime of the project activity, the grievances from the stakeholder if found suitable will be addressed immediately by the top management and thus the approach is found appropriate for the project activity.

The interactions with some of the stakeholders during the site visit are presented below:

Name of the stakeholder	Mr. P. Kumar (Villager)
DOE questions: Did the power project generated employment opportunities for locals youths, skilled or unskilled persons?	
Answer: Yes. Employment given to locals in O&M activities for technically educated youths and unskilled men & women as labours in construction activity as well as vegetation removal etc. work.	

Name of the stakeholder	Mr. Sadashivam Reddy (Farmer)
DOE questions: Did the Solar power project have any adverse impact on the nearby areas?	
Answer: No. Solar power plants do have no adverse impact on surrounding area.	

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

4.4 Public Comments

In accordance with the requirement in clause 3.17.5 of the VCS standard version 3.7 "All VCS projects are subject to a 30-day public comment period. The date on which the project is listed on the project pipeline marks the beginning of the project's 30-day public comment period".

The PP listed their project activity in the VCS pipeline for 30 days from 20/11/2019 20/12/2019 (https://www.vcsprojectdatabase.org/#/pipeline_details/PL2020)^{15/} for public comments. No comments received during the commenting period.

5 VERIFICATION FINDINGS

5.1 Accuracy of GHG Emission Reduction and Removal Calculations

Means verification	of	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the Joint VCS PD & MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD
Findings		No finding was raised on the section.
Conclusion		The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor. The grid in this case would be the 'INDIAN Grid' Formula Used:- $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ 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 verification team has checked the entire monthly JMR report and invoices^{17/} applicable for the monitoring period as per the project activity applied for verifications and found all the parameters are monitored and recorded as per the monitoring plan in the PD^{2/}, ^{16/}. The verification team has crosschecked the emission reduction sheet^{4/} and monitoring report data with the JMR sheet and invoice^{17/} bills and found all the values are matching.

5.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means verification	of	The verification team checked the break down log for the monitoring period. During the verification site visit the feeder wise location of the solar plant is also checked. The Calibration details are also checked.
Findings		CAR 11 was raised during the verification process which was closed successfully.
Conclusion		The metering arrangement is tri-vector bi-directional energy meters (main and check) at the State Electricity Board (SEB) substation. These meters record several parameters including electricity exported & imported. Moreover, the meters are located at the HT side of the transformer and are of accuracy class of 0.2S for each project activity applied for verification. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading) electricity generation statements^{17/}. The Net electricity supplied

	to the grid is then calculated from export and import values. The net electricity exported to the grid is also cross checked from the invoices raised to respective state electricity board which is in line with Methodology requirement for large scale project activity. Hence assessment team confirmed that the value of net electricity exported to the grid as used in emission reduction calculation is correct^{14/}. Electricity export to the grid and import from the grid is metered by main and check tri-vector energy meters. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and O&M personnel. In the event of failure of main meter, the check meter will be used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other solar farm projects. The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity^{16/}. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration is done once in a 5 year¹³. The details of Calibration of the meters are mentioned in Appendix 5 of this report^{18/}. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly O&M contractor is responsible for monitoring of the generation data at CMS. It is reported that the data will be kept for 2 years following the end of the crediting period. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit^{16/}. On-site visit and interview with O&M personnel also confirms that the operational and organizational chart as mentioned in Joint VCS PD & MR is as per the site practice and thus assessment team confirms that the details are correct^{16/}. The break down log is checked and found that the solar Panels undergone scheduled maintenance and break down. No unforced error observed and feeder wise solar Panels location is also checked and found correct^{16/}.
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6 VALIDATION AND VERIFICATION CONCLUSION

Validation Conclusion

M/s Mytrah Vayu (Sabarmati) Private Limited. has commissioned Earthood Services Private Limited (VVB) for validation service for the VCS project “ 250 MW Wind Power Project by Mytrah Energy” against the requirement of VCS Program.

¹³http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

The proposed project activity involves the installation of Wind Power Projects. The total capacity of the project is 250 MW. The project is promoted by **Myrah Vayu (Sabarmati) Pvt. Ltd.** The project activity would use wind energy to generate electricity by harnessing wind energy. The project activity will install a new power plant (i.e. wind power project) at a site where no renewable power plant was operating prior to the implementation of the project activity (green-field plant). The generated electricity will be supplied to grid.

As a result of validation & verification 05 Corrective Action Requests (CARs), 05 Clarification Requests (CLs) were raised and satisfactorily resolved. There is no Forward Action Request (FAR) raised during the validation process.

The review of the Joint VCS PD & MR, corresponding annexures (ER and Financial Spreadsheet) and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided Earthood Services Private Limited (VVB) with sufficient evidence to validate the fulfilment of the stated criteria.

The validation conclusions can be summarised as under:

- A reasonable level of assurance was applied;
- All data and information used for ex-ante calculation of emission reductions is primarily based on historical in nature and part of which is projected;
- The project is in line with all relevant host country legislation;
- The project additionality is adequately justified in the VCS-PD;
- The monitoring plan is feasible, transparent and adequate;
- No deviations from the selected methodology/tool were applicable/applied;

The calculation of the project's emission reductions was carried out in a transparent and conservative manner, so that the calculated emission reductions of 5,570,069 tCO₂e is most likely to be achieved within the 10 year crediting period with an average annual emission reduction of 506,370 tCO₂e.

The conclusions of this report demonstrate that the proposed VCS project, as described in the Joint VCS PD & MR, conforms to all applicable validation criteria.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

Earthood commenced the verification on the basis of the baseline and monitoring methodology ACM0002 version 19.0, the monitoring plan contained in the Joint VCS PD & MR, Version 02 and VCS guidelines version 3.7, as per the process described under Section 2 of this report.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that

Earthhood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 30/01/2019 to 30/11/2019 are fairly stated in the Joint VCS PD & MR, Version 02 dated 20/12/2019. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 version 19.0 and the VCS standard.

Monitoring period: 30/01/2019 to 30/11/2019 (both days inclusive)

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
30/01/19 to 30/11/19	289,425	0	0	289,425
Total	289,425	0	0	289,425

Comparison of actual ER achieved during this monitoring period vis-à-vis estimated ER

Start Date of Monitoring Period	30-01-2019	
End Date of Monitoring Period	30-11-2019	
Number of Days for Current Monitoring Period	305	days
Annual (365 Days) estimation as per Registered PDD	506370	tCO ₂ e
Net Electricity Supplied to Grid during Monitoring Period (MWh)	308957	MWh
ER Estimation for Current Monitoring Period based on operational days	423131	tCO ₂ e
Actual ER for Current Monitoring Period	289425	tCO ₂ e
Change in Emission Reductions	-31.60%	%

The actual emission reduction is lower than 31.60% from the estimated emission reduction. The generation of electricity depends upon many other climatic conditions, and not within the control of the project participant. The lower generation during the current verification period is hence due to certain natural conditions and hence acceptable to the assessment team.

Approved by



Dr. Kaviraj Singh
Managing Director
Earthood Services Privated Limited

Date: 27/12/2019
Place: Gurgaon, Haryana

APPENDIX 1: References

S. No.	Type of document/reference/evidence	Version	Date/No.
1.	Joint VCS PD & MR (draft)	01	20/11/2019
2.	VCS PD (final/revised)	02	20/12/2019
3.	ACM0002 version 19.0	19.0	NA
4.	ER Spread sheet (revised/final)	02	20/12/2019
5.	Financial spread sheet (revised/final)	02	20/12/2019
6.	Onsite Visit by validation team and interviews with PP	-	19/12/2019
7.	Commissioning Letter	-	30/01/2019
8.	Purchase order	-	
9.	Declaration by PP for no double counting & other GHG programmes	-	25/11/2019
10.	Technical Specifications of the Wind Power plant	-	-
11.	Tool for the demonstration and assessment of additionality	07	23/11/2012
12.	Meeting Minutes - Local Stakeholder Consultation	-	
13.	Attendance Record - Local Stakeholder Consultation	-	
14.	CEA Database: CO2 Baseline Database Version 14	-	12/2018
15.	Project VCS webpage https://www.vcsprojectdatabase.org/#/pipeline_details/PL2020	-	-
16.	Board Meeting Extracts	-	25/05/2017
17.	JMR and invoices for the electricity generation data for the complete monitoring period		

18.	Calibration reports of the monitoring meters of the project activity	-	
19.	O&M Contract		02/06/2017
20.	CA Certificate		11/09/2019
21.	Tool to calculate the emission factor for an electricity system	07	-
22.	IPCC Default Values	-	2006
23.	CDM PS for PAs	02.0	29/11/2018
24.	CDM VVS for PAs	02.0	29/11/2018
25.	VCS Standard	3.7	21/06/2017
26.	VCS validation report template	3.4	latest
27.	VCS Program Guide	3.7	21/06/2017
28.	VCS Program Definitions	3.5	21/06/2017
29.	VCS PD Template	3.3	latest
30.	Guidelines on the assessment of investment analysis	05	15/07/2011

APPENDIX 2: Competency Statement

Competence Statement			
Name	Pankaj Kumar		
Education	M.Sc. in Environment Management Post Graduate Diploma in Environment Law B.Sc. (Hons.) Environment and Water Management		
Experience	14 Years		
Field	Climate Change/Waste Management/EIA		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS I.D, ACM0002)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (1.2)	YES		
Reviewed by	Shreya Garg	Date	01/11/2019
Approved by	Anshika Gupta	Date	01/11/2019

Competence Statement	
Name	Anshika Gupta
Country	India

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

APPENDIX 3: Abbreviations

ABT	Availability Based Tariff
BEF	Baseline Emission Factor
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CMP	Conference of Parties Serving as Meeting of Parties
CO2	Carbon dioxide
DISCOM	Distribution Company
EB	Executive Board
EPC	Engineering, Procurement and Construction
FAR	Forward Action Request
GHG	Green House Gas
GOI	Government of India
ISO	International Standards Organization
JMR	Joint Meter Reading
KPTCL	Karnataka Power Transport Company Limited
kW	Kilowatt
kWh	Kilowatt hour
MFR	Multi-Function Relay
MR	Monitoring Report
MW	Megawatt

MWh	Megawatt-hour
O&M	Operation and Maintenance
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
PPA	Power Purchase Agreement
CMS	Central Monitoring System
QA/QC	Quality Assurance and Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units

APPENDIX 4: Findings Overview

Table 1. Remaining FAR from validation and/or previous verifications

FAR ID	NA	Section no.	NA	Date :DD/MM/YYYY
Description of FAR				
No FAR remaining from previous verification.				
Project participant response				Date :DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this validation+ verification

CL ID	02	Section no.	1.1	Date : 20/12/2019
Description of CL				
<i>PP shall clarify total electricity generation and emission reduction value mentioned in sec. 1.1 is annual average value or what and maintain consistency throughout the report</i>				
Project participant response				Date :20/12/2019
<i>The electricity generation and emission reduction value mentioned in sec. 1.1 is the annual average values of the respective parameters. Now, the consistency is maintained throughout the report.</i>				
Documentation provided by project participant				
<i>Joint PD MR V2 and ER sheet.</i>				
DOE assessment				Date: 21/12/2019
Value of annual electricity generation and emission reduction value in sec. 1.1 of revised PDD , Ver. 2 is consistent with ER sheet. Comment closed				

CL ID	03	Section no.	1.9	Date : 20/12/2019
Description of CL				
<i>In sec. 1.9, total 105 no. of WTGs mentioned which is totaling to 252 MW (105X2.4) but total capacity of the project 250 MW. PP shall clarify discrepancy.</i>				
Project participant response				Date : 20/12/2019

The installed capacity of the project considering 105 WTG comes out to be 252 MW, however PP has signed PPA of 250 MW with SEB and thus billing is being done as per the limit specified in the PPA only, as the generation is being capped upto 250 MW. The excess power is being utilized as captive consumption and hence for emission reduction purpose also a total installed capacity has been considered to be of 250 MW.

Documentation provided by project participant

PPA

DOE assessment

Date: 21/12/2019

Justification provided by PP that PPA has been signed for 250 MW only, hence ER claimed only for 250 MW in line with PPA signed with SEBs and remaining 2 MW will be utilized for captive purpose which found to be appropriate. **Comment closed.**

CL ID	04	Section no.		Date : 20/12/2019
Description of CL				
<i>In IRR sheet, tab "project cost" (Cell D11) date of DPR is not consistent with PD.</i>				
Project participant response				Date : 20/12/2019
<i>The DPR date for the project activity is 23-05-2017 and the board resolution meeting was held on 25-05-2017 which is now consistent with the VCS Joint PD MR.</i>				
Documentation provided by project participant				
<i>Joint PD MR V2 and IRR sheet.</i>				
DOE assessment				Date: 21/12/2019
Date of DPR and investment decision in revised IRR sheet is now consistent with PD-MR, ver. 02.				
Comment closed.				

CL ID	05	Section no.	1	Date : 20/12/2019
Description of CL				
<i>PP is also requested to provide supporting documents (investment decision, CA Certificate for actual project cost) for investment analysis</i>				
Project participant response				Date : 20/12/2019
<i>The above asked documents has been submitted with this submission</i>				
Documentation provided by project participant				
<i>CA certificate, Board resolution document.</i>				
DOE assessment				Date: 21/12/2019
PP has submitted copy of board resolution and CA certificate dated 11/09/2019 for actual cost incurred which appears to be appropriate. Comment closed				

CL ID	06	Section no.	1.0	Date : 20/12/2019
Description of CAR				
<i>Declaration from PP regarding participation in other trading / GHG programs, rejection under other GHG program etc. is missing. PP requested to submit the same.</i>				
Project participant response				Date : 20/12/2019
<i>Declaration from PP regarding participation in other trading/GHG programs, rejection under other GHG program etc. has now been submitted.</i>				
Documentation provided by project participant				
<i>Declaration from PP.</i>				
DOE assessment				Date: 21/12/2019
PP has submitted an undertaking dated 25/11/2019 regarding participation in other GHG programs which is found to be appropriate and DoE conclude that there will be no double counting of ERs claimed for this project. Comment closed.				

Table 3. CAR from this joint validation and verification

CAR ID	07	Section no.	2.2	Date: 20/12/2019
<i>In table for description provided for compliance with tool to calculate emission factor for an electricity system, ver. 7.0, PP has referred sec. B.6.3 of the PDD, but no such section in VCS PD.</i>				
Project participant response				Date: 20/12/2019
<i>Description for tool to calculate the emission factor for an electricity system, ver.7.0, has been discussed in section 3.1 of the Joint PD MR and corrections regarding this has been made in this submission.</i>				
Documentation provided by project participant				
<i>Joint PD MR V2.</i>				
DOE assessment				Date: 21/12/2019
PP has made necessary correction and rectified typo error in sec. 3.1 of the PD-MR, Ver. 02. Comment closed				

CAR ID	08	Section no.	2.5	Date: 20/12/2019
1. PP shall provide Weblink for default benchmark in the PD and why default benchmark of UNFCCC (EB 101, Annex. 11) of 29/11/2018 considered when investment decision date is on 22/07/2017 2. In common practice analysis, no evidence or supporting documents provided for calculation of Nsolar, Nall and Ndiff. Common Practice analysis is not conclusive and implicit.				
Project participant response				Date: 20/12/2019
1. The Weblink for default benchmark has been provided in the joint PD MR. And, the reason behind considering default benchmark of UNFCCC (EB 101, Annex.11) of 29/11/2018 when the investment decision date is on 22/07/2017 is described below: • The IRR calculations have been done as per the latest version of the Investment analysis tool- It is to be noted here that at the time of investment making decision, Methodological Tool for Investment Analysis version 08 was applicable, however Request for Registration can be submitted only till 26/07/2019. Hence, Methodological Tool for Investment Analysis version 09 is used. Moreover, it is to be noted that assessment team compared the detail of both version 08.0 and version 09.0 of the methodological tool and observed that there is no major difference in both the version except for the change of default value for benchmark calculation. The default value as mentioned in version 09 is lower than that of version 08 in India which is clearly more conservative. Also, as described above since version 08 RFR submission is valid till 26/07/2019 and hence version 09 is used which is appropriate and more conservative for benchmark calculation. 2. Scanned pages of Directory wind power has been attached with this submission.				
Documentation provided by project participant				
<i>Joint PD MR V2, IRR Sheet</i>				
DOE assessment				Date: 21/12/2019
1. Justification provided for using version 9.0 of methodological tool (EB 101, Annex. 11) appears to be appropriate and accepted. Comment closed 2. Scanned pages of Wind power directory provided checked and found to be appropriate and based on this, DoE able to conclude common practice analysis. Comment closed				

CAR ID	09	Section no.	5.2	Date: 20/12/2019
Description of CAR				
<i>Latest EIA notification of 2018 not referred. PP shall update this section by referring latest applicable statutory requirements and PP is also requested to mention correct name of host country DNA throughout the report.</i>				
Project participant response				Date: 20/12/2019
<i>The asked necessary corrections regarding EIA notification 2018 and Host country DNA has been made in this submission.</i>				
Documentation provided by project participant				
<i>Joint PD MR V2.</i>				
DOE assessment				Date: 21/12/2019
PP has made necessary corrections in sec. 5.2 of revised PD-MR, ver. 02 which are correct. Comment closed				

CAR ID	10	Section no.	5.3	Date: 20/12/2019
Description of CAR				
<i>PP is requested to provide supporting documentation for Local Stakeholders consultation conducted for all project activities (invitation/ public notice/ Summary of consultations/ agenda etc.).</i>				
Project participant response				Date : 20/12/2019
<i>The requested documents has been provided with this submission.</i>				
Documentation provided by project participant				
<i>Notice, MoM, Photographs of Local stakeholder consultation and attendance sheet.</i>				
DOE assessment				Date: 21/12/2019
Supporting documents for stakeholder meeting conducted on 01/08/2017 submitted by PP. Comment closed				

CAR ID	11	Section no.	6	Date: 20/12/2019
Description of CAR				
<i>PP is requested to provide calibration certification applicable to the current monitoring period</i>				
Project participant response				Date: 20/12/2019
<i>Calibration certificates covering the whole monitoring period has now been provided.</i>				
Documentation provided by project participant				
<i>Calibration certificates.</i>				
DOE assessment				Date: 21/12/2019
PP has submitted calibration certificates applicable to current monitoring period. Comment closed.				

Table 4. FAR from this validation/verification

FAR ID	N/A	Section No.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A

N/A	
Documentation provided by project participant	
N/A	
DOE assessment	Date: N/A
N/A	