

“Grouped Wind Power Project in India”



Earthood Services Private Limited

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Summary:

Earthood has performed the VCS second validation of the project “Grouped Wind Power Project in India” (VCS Ref. Number 429) for its renewable of its crediting period.

The validation was performed on the basis of rules and requirements defined by VCS for the project activities.

The review of the PDD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria. The project correctly applies the approved baseline and monitoring methodology ACM 0002 Version 17.

The project deals with utilisation of wind energy for the generation of electricity. Electricity generated from such renewable sources of energy will help displace the energy produced from non-renewable sources of energy such as fossil fuels. Hence will lead to emission reductions of mainly GHGs. Benefits arising from such emission reduction will also lead to optimal usage of energy source.

The emission reductions from the project activity are estimated to be 140,590 tCO₂e per year (annual average) and **1,405,900** tCO₂e over the entire selected 10 years crediting period twice renewable. The emission reduction forecast has been checked, and it is deemed likely that the stated amount is achievable given that the underlying assumptions do not change.

The monitoring plan adequately provides for the ex-ante monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is Earthood’s opinion that the MITCON Consultancy & Engineering Services Ltd. shall be able to implement the monitoring plan.

In summary, it is Earthood’s opinion that the project activity “Grouped Wind Power Project in India, as described in the PD, version 3.1 dated 08/03/2018 meets all relevant requirements for the VCS and correctly applies the baseline and monitoring methodology ACM0002 Version 17.0. Therefore, Earthood requests the registration of the project as a VCS project activity.

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1.1 Objective

MITCON Consultancy & Engineering Services Ltd. has commissioned Earthood Services Private Limited for validation service for the VCS project “Grouped Wind Power Project in India”, against the requirement of VCS Program.

The validation is an independent assessment of the project by Earthood Services Private Limited that determines whether the project complies with the VCS rules. The objective of the validation assessment is to determine the;

- Project conformance to VCS rules;
- Project conformance to the applied methodology, including the procedure for the demonstration of additionality specified in the methodology; and
- Likelihood that methods and procedures set out in the project description will generate verifiable GHG data and information when implemented.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS Project Description (VCS PD) and supporting annexures, which is reviewed by the validation team against the relevant criteria and decisions by the VCS Board, including but not limited to, the approved baseline and monitoring methodology, applicable tools, standards (CDM and VCS) and guidance. The validation team has, based on the recommendations prescribed in the latest version of VCS Validation and Verification Manual employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUUs.

The scope of the validation is to:

- Conduct validation in accordance with Earthood's own QMS that is based on the VCS VVM along with the guidance provided by the VCS board to determine if the project meets all applicable VCS requirements, including those specified in the VCS standard, relevant methodologies, tools and guidelines and processing the same with VCS Program Guide;
- Asses the accuracy, conservativeness, relevance, completeness, consistency and transparency of the information provided by the project proponents;
- Determine whether information provided by the project proponents is reliable and credible;
- Present information in the form of validation report in a factual, neutral, coherent manner and referencing the sources and assumptions, other forms of validation means employed;
- Report the findings and conclusions in an objective manner and conduct all validation in accordance with VCS rules and procedures;
- Apply consistent validation criteria in providing expert judgments to the requirements of applicable approved methodologies, tools and also cross check the same;

- Safeguard the confidentiality of all information obtained during validation; and
- Adhere to the principles of independence, ethical conduct, fair presentation and due professional care in validation process.

1.3 Level of Assurance

A draft validation report for renewable of crediting period is prepared by assessment team and will be reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable VCS and CDM (Clean Development Mechanism) requirements as appropriate. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation team. The report approved by Quality Manager is endorsed by Managing Director, who is overall responsible to ensure quality, before final release. The further details of applicable procedures and responsibilities about Earthood Quality Management System (QMS) are available on its website (www.earthood.in).

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 Earthood 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 crediting period (01/04/2016 to 31/03/2026) are **1,405,900 tCO₂e**, which are fairly stated in the final PD Version 03.1 dated 08/03/2018. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM 0002, Version 17.0, and the VCS standard.

For more information, please refer to section 3.2.6 of the report.

1.4 Summary Description of the Project

This bundled project activity involves the use of wind energy to generate electricity with the help of 111 WTGs installed in the state of Karnataka, Tamil Nadu, Rajasthan, Gujarat and Maharashtra. Wind turbine work on the principle where the incoming wind turns the blades around the rotor thereby producing mechanical energy from the kinetic energy created by the wind. The generator then converts this mechanical energy into electrical energy. Energy generated by the wind potential leads to cleaner production of electricity and also displaces the electricity that would have been otherwise produced from the fossil fuel based sources.

The project has 72 project promoters while it is handled by MITCON Consultancy & Engineering Services Ltd. Total capacity of the project activity is 74.9 MW. Total emission reductions during this crediting period (01/04/2016 to 31/03/2026) are **1,405,900 tCO₂e**.

S.No	Name of Project Promoter	Unique ID	GPS coordinates
1	Pragati Agencies	G-316	17°01'N 74°35'E
2	Umang Textiles	W-06	17°08'N 74°59'E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
3	Ankur Textiles	W-19	17°08'N 74°59'E
4	Vandana Textiles	W-20	17°08'N 74°59'E
5	Sun Irrigation System (P) Ltd.	W-18	17°08'N 74°59'E
6	Jathar Textiles Pvt Ltd.	W-22	17°08'N 74°59'E
7	B. C. Chadrashkhar	W-26	17°08'N 74°59'E
8	B.C. Shivakumar	W-52	17°08'N 74°59'E
9	Aerolex Cablenet	G-324	17°08'N 74°59'E
10	B. S. Channabasappa& Sons	G-334	17°08'N 74°59'E.
11	Air Control (India) Pvt. Ltd.,	GP-99	16°46'N 73°86'E
12	Bengal Cardboard Industries & Printers Pvt. Ltd.	K-318	20°98'N 73°86'E
13	Chaphekar Engineering Pvt. Ltd.	GP-42	16°46'N 73°86'E
14	Economic Explosives Limited.	K -505	16°36'N 74°25'E
15	Jsons Founry Private Limited	GP102	17°01'N 74°35'E
16	Jsons Founry Private Limited	GP101	17°01'N 74°35'E
17	Jsons Founry Private Ltd.	GP31	17°01'N 74°35'E.
18	Western Precicast Pvt Limited	K -437	21°11'N 74°13'E
19	Metal Link Alloys Limited	K -258	16°46'N 73°86'E
20	Naik Sea Foods Limited	K -308	20°98'N 74°31'E
21	RDS Construction Company	K -322	20°98'N 74°31'E
22	Silverline Investment Co. Pvt. Ltd.	K-317	20°98'N 74°31'E
23	Sushila Overseas,	W-23	17°01'N 74°31'E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
24	Vostok (Fareast) Securities Pvt. Ltd.	K-309	20°98'N 74°31'E
25	Shree Ambica Auto Sales & Service	G-87	17°11' N 74°21'E
26	Unirose Textile Processors Pvt. Ltd.	W-60	16°51' N 74°35'E
27	B. S. C. Textiles	W-62	16°51' N 74°35'E
28	P. Vijaya Kumar	W-30	16°51' N 74°35'E
29	B. C. Umapathy (smaller HUF)	W-34	16°51' N 74°35'E
30	P. Mohan Lal	W-33	16°51' N 74°35'E
31	S. K. Veerbhadrappa & Co	W-04	16°51' N 74°35'E
32	SreeVeerbhadrashwara Rice & Flour Mill	W-47	16°51' N 74°35'E
33	GEM Lab. Pvt. Ltd.	K-252	20°58' N 74°19'E
34	GEM Lab. Pvt. Ltd.	J-119	20°58' N 74°19'E
35	Sri Anjaneya Cotton Mills Pvt. Ltd.	K-255	20°59' N 74°19'E
36	Sri Anjaneya Cotton Mills Pvt. Ltd.	K-261	20°59' N 74°19'E
37	Harshita Sales Corporation.	W-54	16°51' N 74°35'E
38	Ushahkal Nursing Home	W-15	16°51' N 74°35'E
39	Mahabal Auto Ancillaries Pvt Ltd	G-360	16°52' N

S.No	Name of Project Promoter	Unique ID	GPS coordinates
			74°34'E
40	Mahabal Metals Pvt. Ltd	K-536	21°11' N 74°13'E
41	MahalaxmiInfraprojects Limited	K-340	21°11' N 74°19 'E
42	Agarwal Packaging Pvt. Ltd.	G-206	16°59' N 74°07 'E
43	Agarwal Packaging Pvt. Ltd.	GP-36	16°59' N 74°07 'E
44	Choudhary Exports	J-082	20°54' N 74°47' E
45	Runwal Developers Pvt. Ltd	K-06	21°11' N 74°19 'E
46	Runwal Developers Pvt. Ltd	K-12	21°11' N 74°19 'E
47	Kulkarni Power Tools Ltd.	J-078	21°16' N 73°56 'E
48	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
49	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
50	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
51	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
52	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
53	Jsons Foundry Private Limited	1445	8°16' N 77°42' E
54	Jsons Foundry Private Limited	2159	8°16' N 77°42' E
55	Western Precicast Pvt. Ltd.	2163	8°16' N 77°42' E
56	P.M.P. Textiles Spinning Mills Limited	497	11°00' N 76 °96'E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
57	RCR Eco-Power	1163	08°16' N 77°42'E
58	RCR Eco-Power	1163	08°16' N 77°42'E
59	RCR Eco-Power	1202	08°16' N 77°42'E
60	RCR Eco-Power	2156	08°16' N 77°42' E
61	RCR Eco-Power	2442	08°16' N 77°42' E
62	Shankarlal	2149	08°16' N 77°42' E
63	B. S. C. Textiles	1870	08°16' N 77°42' E
64	B. S. C. Textiles	1871	08°16' N 77°42' E
65	B. S. C. Textiles	2116	08°16' N 77°42' E
66	P. Vijaya Kumar	1904	08°16' N 77°42' E
67	P. Vijaya Kumar	1496	08°16' N 77°42' E
68	O. B. Agarwal	2147	08°16' N 77°42' E
69	Radha-Mohan Processors	1872	08°16' N 77°42' E
70	Swadeshi Dyeing & Bleaching Mills Private Limited	1875	08°16' N 77°42' E
71	B. S. Channabasappa& Sons	1874	08°16' N 77°42' E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
72	B. S. Channabasappa& Sons	1873	08°16' N 77°42' E
73	B. S. Channabasappa& Sons	2117	08°16' N 77°42' E
74	P. Mohan Lal	1740	08°16' N 77°42' E
75	P. Mohan Lal	1505	08°16' N 77°42' E
76	Operational Energy group India (P) Pvt Ltd	1242	08°16' N 77°42'E
77	Operational Energy group India (P) Pvt Ltd	1242	08°16' N 77°42'E
78	Mahalingashetty& Co. Ltd.	D 62	10°21' N 77°57' E
79	Sri Venkatachalapathy Spinning Mills Pvt. Ltd.	1602	08° 44' N 77°42'E
80	Sri Venkatachalapathy Spinning Mills Pvt. Ltd.	16093	08° 44' N 77°42'E
81	Choudhary Exports	1191	11° 21' N 77°44'E
82	Ramraj Handlooms	1176	08°10' N 77°34' E
83	Ramraj Handlooms	1057	09°48' N 77°19' E
84	Ramraj Handlooms	1961	08°18' N 77°27' E
85	N. Sumati	401	10°58' N 77°17' E
86	K. R. Nagarajan	400	10°58' N 77°17' E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
87	Air Control (India) Pvt. Ltd.,	SEL/600/07-08/0906	21° 63' N 69°06'E
88	Badawe Engineers Pvt. Ltd.	SEL/600/07-08/0922	21°63' N 69°6' E
89	Pragati Glass Pvt. Ltd.,	SEL/1250/06-07/0237	22°46'N 70°06'E
90	Siddharth Infra Tech Pvt. Ltd (Siddharth Construction)	SEL/600/07-08/0904	21°63' N 69°60' E
91	Agarwal Enterprises	SEL/600/07-08/0979	21°38' N 69°36' E
92	Agarwal Enterprises	SEL/600/07-08/0980	21°38' N 69°36' E
93	Unique Sugars Ltd.	SEL/1500/06-07/0441	23°11' N 68°54' E
94	Jaychandra Agro Industries Pvt. Ltd.	SEL/600/06-07/0443	23°11' N 68°59'E
95	Shree Ram Hotels	J-363	26°55' N 70°39'E
96	ChhabraSyncotex Ltd	J-414	26°53' N 71°00'E
97	ChhabraSyncotex Ltd.	J-166	26°55' N 70°51'E
98	ChhabraSyncotex Ltd.	J-367	26°55' N 70°39'E
99	Sona Processors (India) Ltd.	J-370	26°55' N 70°39'E
100	Delhi Rajasthan Transport Co. Ltd.	J-141	26°55' N 70°51'E
101	Metro Cement and Mines Pvt. Ltd.	J-160	26°55' N 70°51'E

S.No	Name of Project Promoter	Unique ID	GPS coordinates
102	SarvodayaSuitings Ltd	J-49	26°91'N 70°90'E
103	SarvodayaSuitings Ltd	J-43	26°91'N 70°90'E
104	Free India Energy Ltd	J225	22°28' N70°04'E
105	S C Shettar and Sons	K-303	15°12' N 75°53'E
106	Swarna Constructions	K-304	15°12' N 75°53'E
107	Suresh Kumar Sharma (HUF)	K-229	15°25' N 75°38'E
108	BEML Limited	K-317	15°25' N 75°38'E
109	BEML Limited	K-318	15°25' N 75°38' E
110	BEML Limited	K-319	15°25' N 75°38' E
111	BEML Limited	K-320	15°25' N 75°38' E

2 VALIDATION PROCESS

2.1 Method and Criteria

Earthood followed a rule based validation approach, wherein, the contract review is undertaken as per valid/effective version of Accreditation Standard. Once the contract is agreed for validation, the PD of the project activity is made available to the DOE as per VCS procedures. Key steps are described in following sections of this report.

2.2 Document Review

The renewal of crediting period is performed primarily as a document review of the registered PD version 1 dated 19/11/2007/01/, and the final PD version 3.1 dated 08/03/2018/03/ for the second crediting period 01/04/2016 to 31/03/2026. The assessment is performed by a validation team using a standardized validation protocol. The cross checks were performed between information provided in the PD and their quoted sources including but not limited to the ones provided by PP.

The validation team's sectoral or local expertise and, if necessary, independent background investigations are considered in the report, wherever applicable.

2.3 Interviews

The assessment team conducted an onsite assessment from 25/07/2017 to 28/07/2017 and following persons were interviewed.

S. No.	Name	Organization	Date	Subject	Team Member
1	Rohit Garg	South Pole	25/07/2017- 28/07/2017	Project implementation	Shreya Garg
2	Deepak Zade	Mitcon	25/07/2017	Emission reduction calculation	Shreya Garg
3.	Suhas Jadhav	Suzlon	25/07/2017- 28/07/2017	Monitoring procedure	Shreya Garg
4.	Vivek Rajmare	Suzlon	25/07/2017- 28/07/2017	WTG maintenance schedule and PLF	Shreya Garg
5.	Anant Ladukar	Mitcon	25/07/2017- 28/07/2017	Data compilation.	Shreya Garg

In addition, the location specified for the WTG were verified from the registered PD/01/ along with the help of <https://www.itouchmap.com/latlong.html>/18/. The operation of the WTGs was checked through the credit notes/05/ issued from the government authorities. Based on the site visit and desk review, the verification team is sufficiently confident of the implementation of the project activity as per registered PD/01/.

2.4 Site Inspections

A site visit was undertaken by Earthood from 25/07/2017 till 28/07/2017 to carry out following;

- An assessment of the implementation and operation of the registered project activity as per the registered PD/01/ and final PD for current second crediting period/03/.
- A review of information flows for generating, aggregating and reporting the monitoring parameters.
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD.
- A cross check between information provided in the monitoring report and data from other sources such as invoices.

2.5 Resolution of Findings

A site visit was undertaken by Earthood from 25/07/2017 till 28/07/2017 to carry out following;

- e. An assessment of the implementation and operation of the registered project activity as per the registered PD/01/.
- f. A review of information flows for generating, aggregating and reporting the monitoring parameters.
- g. Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD.
- h. A cross check between information provided in the monitoring report and data from other sources such as invoices.
- i. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline.
- j. A review of calculations and assumptions made in determining the GHG data and emission reductions.
- k. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and onsite assessment. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and nonconformities, which may be of following types;

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

- a) Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient
- b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions
- d) Change to the key sustainable development indicators
- e) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable GS requirements have been met. All CARs and CLs raised by the Earthood during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

A total of 06 CAR and 01 CL were raised in the current verification.

All the findings that are raised and communicated to project participant during the verification are included under Appendix 4. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise

2.5.1 Forward Action Requests

Not applicable

3 VALIDATION FINDINGS

3.1 Project Details

The project activity is a grouped project where the potential energy of the wind is used to generate electricity. The generated renewable electricity will displace equivalent amount of carbon intensive electricity from the Northern, Eastern, Western and North Eastern Grid (NEWNE) and Southern Grid in India. The wind turbine converts wind's kinetic energy into electricity. This project activity based on an environmentally safe technology provided by the various wind technology suppliers i.e. NEPC, Pioneer Wincon, Suzlon Ltd., NEG Micon, Gamesa Eolica. The aggregate capacity of project is 74.9 MW. The project activity involves 72 project promoters which comprises installation of total 111 No's WTGs ranging from 0.225 to 1.5 MW. The information mentioned above was checked through the registered PD/01/ and the previous validation report/02/ submitted by the PP. The names of the 72 PP are given and validated by validation team are given in the final PDD submitted for the second crediting period.

Prior to this project activity, the places where the WTGs are present were (i) undeveloped, hilly terrain without obstacles (ii) without road network connectivity (iii) poor soil quality (iv) partial agricultural, grass & shrubs, cattle grazing (v) low technical wages employment in the area and (vi) low commercial market value for land & property. This project activity is new initiative at the wind sites.

The start date of this large scale project activity is 14/03/2004 (The earliest date of J - 225 in the grouped project activity based on commissioning date) which was checked through the commissioning certificates/10/ provided by the PP.

The project activity meets all the local laws, statutes and other regulatory frameworks of India, which was checked by the validation team through the commissioning certificates/10/ and power purchase agreements/11/.

Ownership of each WTG were checked against their power purchase agreements/11/ and commissioning certificates/10/. A letter of undertaking/06/ has also been submitted by the PP stating that the project participant confirms that:

1. the net GHG emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG emissions.
2. the project neither has nor intends to generate any other form of GHG-related environmental credit from GHG emission reductions or removals claimed under the VCS program, or that any such credit has been or will be cancelled from the relevant program.
3. Further the project has not been rejected under any other GHG program and is registered only under VCS project activity. There is no commercially sensitive information throughout the entire project activity.

Some of the sustainable development contributions of the project activity includes:

1. Social well-being providing employment opportunities.
2. Economic well-being by providing good investment opportunities. The project activity will also lead to diversification of the national energy supply, which is dominated by conventional fuel based generating units.
3. Environmental well being- By utilising renewable wind energy for generating electricity leads to reduction of GHG emissions as otherwise electricity would have been generated by the fossil fuel based power plants.

For this second crediting period (01/04/2016 to 31/03/2026) the total amount of estimated emission reductions is 1,405,900 tCO₂e and average annual emission reduction is 140,590 tCO₂e.

3.2 Application of Methodology

3.2.1 Title and Reference

The methodology used in this project activity is Title: ACM0002 - "Consolidated methodology - grid-connected electricity generation from renewable sources" 1 (Version 17.0)/07/ (<https://cdm.unfccc.int/methodologies/DB/8W400U6E7LFHHYH2C4JR1RJWWO4PVN>)

The methodology refers to ACM 0002 to the latest approved version of following tools-

"Tool for the demonstration and assessment of additionality" version 07

(https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v5.2.pdf/history_view)

"Tool to calculate the emission factor for an electricity system" version 06

https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v1.1.pdf/history_view

The PD, V03/03/, was completed using applied approved methodology ACM0002, V17.0. The validation team has performed the assessment based on above applied version of methodology to complete the Annex-I (Protocol), the assessment of later versions of the PD are performed as per recent version (ACM0002, V17.0.0)/07/ of methodology available.

3.2.2 Applicability

The project activity is a bundled wind power project of total installed capacity of 74.09 MW hence “Consolidated baseline methodology for grid connected electricity generation from renewable sources” ACM0002/07/ is applicable for this project. The project activity is an installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. (Greenfield Power Plant)

The methodology is applicable under the following conditions

Applicability condition stated in Methodology	PP's Response	DOE's Validating response
This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (a) Involve a capacity addition to (an) existing plant(s); (b) Involve a retrofit of (an) existing operating plants/units; (c) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (d) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a renewable energy project i.e. wind power project which falls under applicability criteria option (a) “Install a greenfield power plant” The project activity is the installation of a wind power plant of total capacity 74.9 MW. Hence project activity meets the applicability criterion.	Methodology is applicable as the project activity involves installation of (greenfield) wind power plant whose capacity 74.9 MW was validated by the commissioning certificates/10/ and previous validation report/02/.
The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started	The option (a) of the applicability criteria is applicable as project is renewable energy wind power plant/unit.	Methodology is applicable as the project activity involves use of wind power plant to generate renewable energy and displace fossil fuel based energy.

commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.		
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m²; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m², all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m²; (ii) Water flow between reservoirs is not used by any other	The project activity is new installation of wind power plant hence, this condition is not applicable.	Not applicable as the project activity is not a case of hydro power plants.

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

the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.		
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project activity is new installation of wind power plant hence, this condition is not applicable.	Not applicable as the project activity is does not fulfil the conditions listed.
In addition, the applicability conditions included in the tools referred to below apply	Please refer below table	Please refer below table

“Tool to calculate the emission factor for an electricity system” Annex 7, EB 97 (Version 6.0)

This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield Wind power project and thus the tool is applicable.	Tool is applicable as the project activity involves installation of wind power plant that is connected to the grid which was validated with the power purchase agreement/11/.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 2: Procedures related to off-grid power	Steps involved in calculation of Emission Factor is included in section 3.1 of the VCS PD as per the requirement of the tool	Tool is applicable and has been used correctly in the calculation of the emission factor.

generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.		
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable	Tool is applicable as the project is located in non-annex 1 country/18/
Under this tool, the value applied to the CO2 emission factor of biofuels is zero.	The project is a Wind Power Project and there is no involvement of biofuels.	Since no biofuel is used hence this tool is applicable

3.2.3 Project Boundary

The project boundary includes 72 project promoters with capacity of WTGs ranging from 0.225 to 1.5 MW. The project boundary has been validated through site visit at the project site confirming the project features.

Table: The system boundary is justified transparently and is presented below.

Source		Gas	Included	Justification/Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO ₂	Included	Main emission source
		CH ₄	Excluded	Excluded for simplification. This is conservative
		N ₂ O	Excluded	Excluded for simplification. This is conservative
		Other	Excluded	Not required for the project
Project	For dry or flash steam geothermal power plants, emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal	CO ₂	Excluded	Not required for the project
		CH ₄	Excluded	Not required for the project
		N ₂ O	Excluded	Not required for the project

Source	Gas	Included	Justification/Explanation
steam	Other	Excluded	Not required for the project
CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO ₂	Excluded	Not required for the project
	CH ₄	Excluded	Not required for the project
	N ₂ O	Excluded	Not required for the project
	Other	Excluded	Not required for the project
For hydro power plants, emissions of CH ₄ from the reservoir	CO ₂	Excluded	Not required for the project
	CH ₄	Excluded	Not required for the project
	N ₂ O	Excluded	Not required for the project
	Other	Excluded	Not required for the project

3.2.4 Baseline Scenario

It was verified that as per the “Consolidated baseline methodology for the grid connected electricity generation from renewable sources” (version 17)/07/, If the project activity is the installation of a Greenfield power plant, the baseline scenario is:

Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

The baseline emission factor $EF_{grid,CM,y}$ was calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the “Tool to calculate the emission factor for an electricity System”

According to item 3.8.5 of the VCS Standard, version 3.7, The validity of the original baseline scenario shall be assessed. Such assessment shall include an evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario.

According to ACM0002 methodology, if the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

The baseline scenario is the same as the previous baseline scenario identified in the first crediting period. There is no relevant national and/or sectoral policy and circumstances that affect the baseline scenario.

Besides that, it was validated that the VCS Standard indicates that “where it is determined that the original baseline scenario is still valid, the GHG emissions associated with the original baseline scenario shall be reassessed using the latest version of the CDM Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period.”

Steps of the CDM Methodological Tool – “Assessment of the Validity of the Original/current baseline and update of the baseline at the renewal of the crediting period”, version 03.0.1

Step 1: Assess the validity of the current baseline for the next crediting period The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

There was no legal and regulatory requirement that mandates the production of energy by the chosen technology. Investment in wind energy projects in the Indian electricity grid is not mandatory. There are no national or local laws or regulations that require this investment to be undertaken, i.e., setting up of wind power projects. The setting up of wind energy projects is a voluntary activity. Hence the baseline for the project activity remains unchanged in the crediting period.

Step 1.2: Assess the impact of circumstances

As per the methodology ACM0002, version 17.0.0, the alternative for the project activity is generation of equivalent amount of electricity by operation of grid-connected power plants and by addition of new generation sources. The alternative scenario for the project activity remains same and the grid still supplies primarily fossil fuel based electricity as reflected in the combined margin emission factor. Hence, circumstances and the externalities for determining the baseline for the project activity are same.

Therefore, there is no change in baseline scenario.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

This sub-step has to be applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment. Since this is not the case with the project activity under consideration, hence this condition is not applicable.

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

This step stipulates that “Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the VCS project activity.”

In the context of the present project activity the emission factor has been updated along with the approach used to calculate the emission factor.

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

As evident from the explanation provided above the baseline scenario remains unchanged. Only the baseline emission factor has been updated as per the latest version of CEA database 12.0/08/available at the time of PD submission for renewal of crediting period.

The approved consolidated baseline methodology, ACM0002. (Version 17.0)/07/, has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology “Tool to calculate the emission factor for an electricity system” (version 06.0) has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

3.2.5 **Additionality**

As per the VCS standard version 3.7 a full reassessment of the additionality is not required when the renewing the credit period. However, the regulatory surplus required by the standard has been demonstrated by the PDD has been validated by the DOE. It was declared by the PP that the project activity was a purely voluntary initiative of all PP. It is a business decision of the PP. The project was not in any way mandated by any law, statute or other regulatory framework. Neither was it the outcome of any systematically enforced law, statute or regulatory framework or policy that was implemented

- a) Since 11th November 2001 to provide a comparative advantage to less emission intensive technologies or activities (E minus policies) or,
- b) Since 11th December 1997 to provide a comparative advantage to more emission intensive technologies or activities

The project adheres to the requirements of the regulatory surplus and the additionality was found to be justified for the project activity.

3.2.6 **Quantification of GHG Emission Reductions and Removals**

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

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)

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ was done as per option (a) greenfield plant. This case is described next

If the project activity is the installation of a Greenfield power plant, then

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

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

During this validation the parameter $EG_{PJ,y}$ for each WTG was calculated by multiplying the installed capacity with plant load factors/02,03/.

emission factor ($EF_{grid,OM,y}$) and the build margin emission factor ($EF_{grid,BM,y}$), where the weight $W_{OM} = 0.75$ and $W_{BM} = 0.25$.

$EF_{grid,CM,y}$ is determined as follows:

The emission factor was calculated in a transparent and conservative manner as follows

- (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system"

Or

- (b) The weighted average emission factor (in t CO₂e/MWh) of the current generation mix. In the above scenario PP has choice to either Ex-ante emission factor which remains constant over the crediting period as per option (a) or use Ex-post emission factor which changes every year during crediting period as per option (b). Hence, PP decided to calculate & use the Ex-ante emission factor as per option (a). Baseline emission reductions have been estimated using combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system" Annex 7, EB 97 (Version 6.0)

The emission factor which is calculated by the CEA are as follows

Indian Grid: 0.9660 t CO₂/MWh

The baseline emission for the project was calculated by using following formula-

$$\begin{aligned} \text{Baseline emissions (t CO}_2\text{/yr)} &= \text{Power generated from the project (MWh/yr)} * \text{Grid Emission Factor (t CO}_2\text{/MWh)} \end{aligned}$$

$$\begin{aligned} EF_{grid,CM,y} &= EF_{grid,OM,y} \times 0.75 + EF_{grid,BM,y} \times 0.25 \\ &= 0.9853 \times 0.75 + 0.9082 \times 0.25 \\ &= 0.9660 \text{ t CO}_2\text{/MWh} \end{aligned}$$

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where

ER _y	=	Emission reductions in year y (t CO ₂ e)
BE _y	=	Baseline emissions in year y (t CO ₂)
PE _y	=	Project emissions in year y (t CO ₂ e)

Since project activity involves renewable power generation and as per the methodology/XX/ PE_y and leakage =0.

According to the formulae prescribed by the applied methodology, the emission reductions (ER_y) by the project activity during the crediting period is the difference between the baseline emissions (BE_y), project emissions (PE_y) and emissions arising from leakage (LE_y), which is expressed as follows:

$$ER_y = BE_y - PE_y$$

While the leakage is zero in case of renewable energy projects, the emission reductions are equal to the difference of the baseline emissions and project emission due to the project activity. According to the applied methodology, the baseline emissions are demonstrated in PD and are calculated using methodology equations is as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{gid,CM,y}$$

From the formulas used above it is evident that the proposed project activity fulfils applicable monitoring requirements of the applied methodology/5/, and well supported with the assumed data. The calculations have further been detailed in the excel spread sheet/3/ provided for the project activity. The annual emission reductions estimated for the project activity are 140,590 tCO₂e per year, the same value has been validated by the assessment team.

3.2.7 Methodology Deviations

The project activity complies with the applied methodology and no deviation of any sort is applicable for the project activity.

3.2.8 Monitoring Plan

The monitoring provisions prescribed in the applied methodology /5/ are suitably incorporated in the section 4 of the PD. The necessary monitoring parameters relevant and applicable in the context of the project activity are suitably identified and clearly described under section 4.2 of PD.

Ex ante parameters

The validation of ex ante parameters is described below;

Parameters ex ante	Assessment/Observation
CO ₂ operating margin emission factor of Indian Grid	The data are obtained from "CO ₂ Baseline Database for Indian Power Sector" version 12.0/08/, published by the Central Electricity Authority, Ministry of Power, Government of India. Assessment is of the opinion that the value presented in the latest PD/1.3/ i.e. 0.9853, is consistent and applicable to the project activity.

EF_{grid,OM,y}	
Build Margin CO ₂ emission factor in year y EF _{grid,BM,y}	Calculated as per “Tool to calculate the emission factor for an electricity system, version 06.0.0” for the year 2013-2014. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 12.0/08/, published by the Central Electricity Authority, Ministry of Power, Government of India. Validation of the documents makes assessment team conclude that value applied by PP i.e. 0.9082 is consistent and correctly presented for the project activity.
Combined Margin CO ₂ build margin emission factor of Indian grid EF _{grid,CM,y}	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% EF_{grid,CM,y} = 0.9660 t CO₂/MWh Validation team is of an opinion that calculation of the parameter is as per the applied methodology and free from material errors.

The validation of parameters to be monitored is described below;

Parameters to be monitored	Assessment/Observation
Quantity of net electricity generation supplied by the project plant/unit to the grid in year y EG _{PJ,y}	The value applied is 145,539 MWh . The project electricity generation is based on the net units displaced as measured by main metering system installed at the interconnection point (substation point) and losses are calculated for respective states whichever is applicable. The net electricity exported to the grid is cross checked electricity sales receipt (Invoice).

3.3 Non-Permanence Risk Analysis

The project activity is commissioned, and the technical specifications have been verified against the actual plant specifications. The parameters to be monitored are through electronic meters therefore the likelihood of error is purely systematic in nature. Therefore, assessment team is of the opinion that the emission reductions are free from any omissions, misstatement and material errors.

4 SAFEGUARDS

4.1 No Net Harm

No potential negative impacts were identified in the project activity.

4.2 Environmental Impact

As per the Schedule 1 of Ministry of Environment and Forests (Government of India) notification dated January 27, 1994 and further modified on 14th September 2006, regarding requirement of Environment Impact Assessment (EIA) studies for a range of infrastructure projects, 38 categories of the proposed industry or project is required to undertake EIA studies. The details of these activities are available at: <http://envfor.nic.in/divisions/iass/notif/eia.htm>. The proposed project doesn't fall under the list of activities requiring EIA as it will not involve any negative environmental impacts, as the WTGs installation for generation of power use wind (cleanest possible source of renewable energy).

4.3 Local Stakeholder Consultation

Local stakeholder consultation was held for all PPs across different location. Invitation was send in the form of letters and local newspaper invite. PPs were asked about the impacts of VCS activity including the benefits of the project activity. Details of the local stakeholder consultation was checked from the previous validation report/02/ and final PD/03/ of the local stakeholder meeting.

4.4 Public Comments

The local stakeholders appreciated local job creation, road construction and other benefits initiated due the project activity. Local stakeholders had no objections or negative comments relating to the project & regards best wishes to welcome such activity. An adequate participation of the local stakeholders at all the levels was ensured and is evident from the information sheet of the consultation process checked by the validation team.

5 VALIDATION CONCLUSION

Earthood Services Private Limited (Earthood) has been contracted by MITCON Consultancy & Engineering Services Ltd.to perform a validation of the project: Grouped Wind Power Project in India.

The validation was performed in accordance with the VCS Standard version 3.7/14/, latest version of Validation and Verification Manual and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The proposed VCS project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change. In our opinion, the project meets all relevant VCS criteria and all relevant host country criteria.

The project correctly applies methodology ACM 0002 - Consolidated methodology for grid-connected electricity generation from renewable sources (version – 17)/07/. It is demonstrated that the project is not a likely baseline scenario. The emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 1,405,900 tCO₂e over 10 years of second crediting period starting 01/04/2016, averaging 140,590 tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

As a result of validation 01 CL and 06 Corrective Action Requests (CARs) were raised and satisfactorily resolved. There is no Forward Action Request (FAR) raised during the validation process.

The review of the VCS PD, corresponding annexures 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 1,405,900 tCO₂e is most likely to be achieved within the 10 year crediting period with an average annual emission reduction of 140,590 tCO₂e.

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



Dr. Kaviraj Singh

Managing Director

Earthood Services Private Limited

12/03/2018

Gurgaon, Haryana, India

APPENDIX 1: References

S.No	Title of Document	Version	Date
1.	Registered VCS PD(for first crediting period)	2.1	09/11/2009
2.	Previous validation report	01	17/11/2009
3.	VCS PD for second crediting period	3.1	08/03/3018
4.	ER spreadsheet (corresponding to the final PD)	-	-
5.	Invoice issued for all PP	-	-
6.	Letter of undertaking	-	20/02/2018
7.	"ACM0002 - "Consolidated methodology - grid-connected electricity generation from renewable sources"	Version 17.0	-
8.	CEA Database	version 12.0	-
9.	On-site assessment, interviews of plant staff	-	25/07/2017 to 28/07/2017
10.	Commissioning certificate for all the WTGs of the project activity	-	-
11.	Power Purchase Agreements	-	-
12.	VCS webpage for the project, VCS ID 429; http://www.vcsprojectdatabase.org/#/project_details/429	-	Last accessed on 27/02/2018
14.	VCS Standard	Version 3.7	21/06/2017
15.	VCS Program Guide	Version 3.7	19/10/2016
16.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	-
18.	https://www.itouchmap.com/latlong.html/ last accessed on 27/02/2018	-	-

APPENDIX 2: Competency Statement

Competence Statement			
Name	Abhishek Mahawar		
Country	India		
Education	B. Tech. (Chemical Engineering) MBA (Finance)		
Experience	9 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D, AMS I.F. and ACM0002		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (1.2)		
Reviewed by	Ashok Gautam	Date	01/03/2018
Approved by	Kaviraj Singh	Date	01/03/2018

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

Competence Statement			
Name	Harshita Kulshrestha		
Country	India		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	1.5 Year +		
Field	Climate Change		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

APPENDIX 3: Abbreviations

BEF	Baseline Emission Factor
BM	Build Margin
CAR	Corrective Action Request
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CMS	Central Monitoring System
CMP	Conference of Parties Serving as Meeting of Parties
CO ₂	Carbon dioxide
EB	Executive Board
FAR	Forward Action Request
GHG	Green House Gas
ISO	International Standards Organization
JMR	Joint Meter Reading
kW	Kilowatt
kWh	Kilowatt hour
MR	Monitoring Report
MW	Megawatt
MWh	Megawatt-hour
NEWNE	Northern Eastern Western Northern-Eastern
PD	Project Description
PP	Project Proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
WTG	Wind Turbine Generator
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units

APPENDIX 4: Verification Findings

Table 1. CL from this verification

CL ID	01	Section no.		Date : 01/08/2017
Description of CL				
PP is requested to submit the following documents to the DOE:				
1. Commissioning certificates 2. Power Purchase Agreement 3. Document stating the operational lifetime of the equipment 4. Letter of undertaking for emissions trading programs (section 1.12.2 of the PD) and other forms of environmental credits (section 1.12.3 of the PD).				
Project participant response				Date : DD/MM/YYYY
Submitted				
Documentation provided by project participant				
DOE assessment				Date: 19/01/2018
1) The following PPs commissioning certificates were found missing. Open (a) Sri Venkatachalapathy & Co. Ltd. (b) Chabra Syncotex Ltd. 2) The following PPs power purchase agreement were found missing Open (a) Choudhary Exports (b) Sri Venkatachalapathy & Co. Ltd (c) Air Control Pvt Ltd (d) Chabra Syncotex Ltd. 3) Documents stating the operational lifetime of the equipment have not been submitted. Open 4) Letter of undertaking for emissions trading programs (section 1.12.2 of the PD) and other forms of environmental credits (section 1.12.3 of the PD) have not been submitted. Open				
Project participant response				Date : 21/02/2018
1) PP has submitted the energy generation statement, invoice and PPA as a proof of project ownership. 2) PP has submitted the energy generation statement, invoice and PPA as a proof of project ownership. 3) For operation life time of the project PP is referring to National Institute of Wind Energy and Ministry of New and Renewable Energy documents which suggests the life time of the Wind power projects is 20 years. 4) Letter of undertaking for emission trading program and environmental credits submitted by Mitcon as Mitcon.				
Documentation provided by project participant				
(a) Sri Venkatachalapathy & Co. Ltd. – Statement showing energy generated through wind mill for the month of Nov 2011 (b) Chabra Syncotex Ltd. – Power Purchase agreement dated 26th Feb 2008 (c) Choudhary Exports - Energy export to grid report dated 13th Dec 2011 (d) Air Control Pvt Ltd – Commissioning certificate dated 21th April 2008 (e) National Institute of Wind Energy Annual Report 2015-16 (f) http://mnre.gov.in/file-manager/UserFiles/faq_wind.pdf (g) Letter of undertaking				
DOE assessment				Date: 26/02/2018

1. (a) Commissioning date of the WTG can be verified from the pervious validation report and the ownership of the WTGs can be verified from the energy generation sheets provided by the PP. Closed
 - (b) Commissioning date of the WTG can be verified from the pervious validation report and the ownership of the WTGs can be verified from the power purchase agreement provided by the PP. Closed
 2. (a) Proof of ownership as required by the power purchase agreement can also be verified from the document submitted by the PP i.e. energy generation by the windmill. Closed.
 - (b) Proof of ownership can be verified from the source documents provided by the PP. Closed
 - (c) Proof of ownership can be verified from the power purchase agreement as submitted by the PP. Closed
 - (d) Proof of ownership can be checked from the source documents provided by the PP.
 3. Documents stating the operational lifetime submitted by the PP was found to be acceptable and appropriate by the DOE. Closed
 4. Letter of undertaking given by the PP was found to be acceptable and appropriate by the DOE. Closed
- The CL is closed.**

Table 2. CAR from this verification

CAR ID	02	Section no.		Date	01/08/2017
Description of CAR					
Project description provided in section 1.1 and 1.8 of the PD was found inconsistent with the project implementation mentioned in the previous monitoring reports and documents on VCS database. Kindly justify.					
Project participant response					Date
Section 1.1 of PD has been updated					DD/MM/YYYY
As M/s Jsons Foundry Private Limited & M/s Western Precicast Pvt. Ltd has withdrawn their eight WTGs for Tamil Nadu site of capacity 1.8 MW (8 X 0.225 MW) of HTSC No. 1445, 0.225 MW of HTSC No. 2159 and 0.225 MW of HTSC No. 2163 from "Grouped Wind Power Project in India" for entire crediting period ² during monitoring period July 2010 to Oct 2011. Hence the project activity consists of total 103 numbers of WTGs.					
Section 1.8 of PD has already as per section 1.1.					
Documentation provided by project participant					
DOE assessment					Date
Project description has been updated by the PP however two issues related to this were observed:					19/01/2018
1. A declaration for the withdrawn eight WTG's project promoters M/s Jsons Foundry Private Limited & M/s Western Precicast Pvt. Ltd has to be submitted. 2. As per VCS guidance version 3.2 page 24(http://database.v-c-s.org/sites/vcs.benfredaconsulting.com/files/VCS Validation Verification Manual v3.2.pdf), the change listed above was identified as a project description deviation. Please justify. Open					

²The letter of withdrawal of PP has been provided to DOE for validation.

Project participant response	Date : 21/02/2018
1. M/s Jsons Foundry Private Limited & M/s Western Precicast Pvt. Ltd withdrawn from the project only during monitoring period July 2010 to Oct 2011 hence there is no project description deviation. Project description revised in section 1.1 and 1.8 of the PD.	
Documentation provided by project participant	
DOE assessment	Date: 26/02/2018
PD has been revised accordingly with updated section 1.1 and 1.8 of the PD. closed	

CAR ID	03	Section no.		Date : 01/08/2017
Description of CAR				
The following discrepancies were observed with reference to VCS standard 3.7				
1. PP needs to demonstrate the regulatory surplus as required by para 3.8.5 of the VCS standard version 3.7. 2. The validity of original baseline scenario was not found to be reassessed using the latest version of the CDM <i>'Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period'</i> as required by the VCS standard v3.7				
Project participant response				Date : DD/MM/YYYY
Updated				
Documentation provided by project participant				
DOE assessment				Date: 19/01/2018
1. PD is now correctly demonstrate the regulatory surplus as per the VCS standard 3.7. Closed 2. Step-wise demonstration of the <i>'Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period'</i> must be included in the PD as required by the VCS standard v3.7.. Open				
Project participant response				Date : 21/02/2018
2. PP has revised the section 2.4 as per <i>'Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period'</i> version 3.0.1.				
Documentation provided by project participant				
DOE assessment				Date: 26/02/3018
PDD has been revised accordingly and now states steps that are in line with Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period.Closed				

CAR ID	04	Section no.		Date : 01/08/2017
Description of CAR				
Section 2.2 of the PD was not found to be inline to the applied methodology ACM0002 version 17.				
Project participant response				Date : DD/MM/YYYY
Section 2.2 of the PD has been made inline with the applied methodology ACM0002 Version 17				
Documentation provided by project participant				
DOE assessment				Date: 19/01/2018
Revised PD was found to be in line with the methodology ACM0002 Version 17. Closed.				

CAR ID	05	Section no.		Date : 01/08/2017
Description of CAR				

The following information was found inconsistent in the PD

1. Grids mentioned in the PD are inconsistent within the PD and the applied CEA guideline.
2. Emission factor calculation in inconsistent with reference to the tool to calculate the emission factor for an electricity system (Version 5.0)
3. Section 1.7 of the PD have inconsistent total estimated ERs and average annual ERs.

Project participant response	Date : DD/MM/YYYY
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| 1. Grids has been updated within the PD
2. Updated
3. Section 1.7 of PD has been updated |
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Documentation provided by project participant
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DOE assessment	Date: 19/01/2018
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| 1. PD has been effectively revised. Closed
2. Emission factor calculation in now consistent with reference to the tool to calculate the emission factor for an electricity system (Version 5.0) Closed
3. Section 1.7 of the PD has been revised appropriately. Closed |
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The CAR has been closed.

CAR ID	06	Section no.		Date : 01/08/2017
Description of CAR				
The following information was found inconsistent in the PD with reference to VCS PD template form version 3.3				
1. Section 1.1 of the PD does not have information on <i>estimate of annual average and total GHG emission reductions and technological description</i> 2. Section 2.1 of the PD does not have tools used by the project activity listed there.				
Project participant response				Date : DD/MM/YYYY
1. Section 1.1 of PD has been updated 2. Section 2.1 of PD has been updated.				
Documentation provided by project participant				
DOE assessment				
				Date: 19/01/2018
1) Section 1.1 has been appropriately revised. Closed 2) Section 2.1 does not state the "Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period" . Open				
Project participant response				Date : 21/02/2018
2. Section 2.1 revised and included " Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period" version 3.0.1				
Documentation provided by project participant				
DOE assessment				
				Date: 26/02/2018
PDD has been revised to reflect step wise analysis in accordance with "Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period" .Closed				