

KALADONGER WIND POWER PROJECT IN RAJASTHAN



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Summary:

Verification purpose: The project activity envisages implementation of a 75.6 MW wind power project consisting of 36 Wind Electric Generators (WTGs) of individual capacity 2.1 MW, at Kaladonger village in Rajasthan, India by M/s Bindu Vayu Urja Private Limited (BVUPL). The electricity generated by the project is exported to the NEWNE electricity grid. The project activity is 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 VCS benefits for the project. The project activity is in line with the sustainable development priorities of the country. The electricity generated from the wind farm will be exported to the NEWNE grid and sold to the state electricity utility, thereby marginally contributing to reducing the energy demand supply gap in the state of Rajasthan¹.

The project activity helps to reduce the supply demand gap in the state and also helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG Emissions. In the project site, there are other wind projects owned by other customers connected to the same substation. There is an apportioning procedure which is approved by the state nodal agency for apportioning the electricity to each and every customer. The project uses Suzlon's wind energy technology. The project activity implements S95 model 2.1MW WTGs. The total emission reductions for the current monitoring period i.e. 07-January-14 to 31-May-18 (inclusive of both days) are 513,733 tCO_{2e}. VCS begins on 18th February 2012 and ends on 17th February 2022. The project is undergoing CDM 1st periodic issuance from 31 Dec 2012 - 06 Jan 2014 and thus the same period is avoided in VCS for any double counting issue. The present monitoring period for the project is 07-January-14 to 31-May-18.

A risk based approach has been followed to perform this verification activity. In the course of

¹ <http://www.cea.nic.in/reports/yearly/annual rep/2009-10/ar 09 10.pdf>

verification, 07 Corrective Action requests (CAR), 00 Clarification Requests (CLs) and 00 Forward action requests (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 PP have provided DOE with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "M/s Bindu Vayu Urja Private Limited (BVUPL)" to perform the 2nd periodic verification of the "Kaladonger wind power project in Rajasthan" under VCS standard and guideline version 3.7. The objective of this verification activity is to have an independent third party for the assessment of the project design, Monitoring report and Final Verification report 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 12.3.0"
- the project's monitoring plan is assessed against "ACM0002 v 12.3.0"
- 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 version 01 for the project activity
- CDM Project Standard version 01 for the project activity
- CDM Project Cycle Procedure version 01 for the project activity
- VCS standard v3.7
- VCS program guideline v3.7

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 verified emission reductions (VERs).

The scope of the verification is the independent and objective review of the Monitoring report (MR). The MR is reviewed against the relevant criteria (see 1.1) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The verification was based on the guidance given in the CDM Validation and Verification Standard version 01 for the project activity, review against registered PD and Final Validation report, CDM Project Standard version 01 for the project activity, CDM Project Cycle Procedure version 01 for the project activity and VCS program guideline and standard version 3.7.

The assessment team has employed a risk based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for site visit or document verifications. The entire documents checked/WTGs verification conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by “M/s Bindu Vayu Urja Private Limited (BVUPL)” to perform the 2nd periodic verification of the “Kaladonger wind power project in Rajasthan” under VCS standard and guideline version 3.7. The objective of this verification activity is to have an independent third party for the assessment of the project design, Monitoring report and Final Verification report 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 12.3.0”
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- 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 version 01 for the project activity
- CDM Project Standard version 01 for the project activity
- CDM Project Cycle Procedure version 01 for the project activity
- VCS standard v3.7
- VCS program guideline v3.7

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 verified emission reductions (VERs).

1.2 Scope and Criteria

The scope of the verification is the independent and objective review of the Monitoring report (MR). The MR is reviewed against the relevant criteria (see 1.1) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The verification was based on the guidance given in the CDM Validation and Verification Standard version 01 for the project activity, review against registered PD and Final Validation report, CDM Project Standard version 01 for the project activity, CDM Project Cycle Procedure version 01 for the project activity and VCS program guideline and standard version 3.7.

The assessment team has employed a risk based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The verification is not meant to provide any consulting towards the project participants. However, stated

requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

1.3 Level of Assurance

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for site visit or document verifications. The entire documents checked/WTGs verification conducted to arrive at positive verification conclusions.

1.4 Summary Description of the Project

The project activity envisages implementation of a 75.6 MW wind power project consisting of 36 Wind Electric Generators (WTGs) of individual capacity 2.1 MW, at Kaladonger village in Rajasthan, India by M/s Bindu Vayu Urja Private Limited (BVUPL). The electricity generated by the project is exported to the NEWNE electricity grid. The project activity is 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 VCS benefits for the project. The project activity is in line with the sustainable development priorities of the country. The electricity generated from the wind farm will be exported to the NEWNE grid and sold to the state electricity utility, thereby marginally contributing to reducing the energy demand supply gap in the state of Rajasthan².

The project activity helps to reduce the supply demand gap in the state and also helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG Emissions. In the project site, there are other wind projects owned by other customers connected to the same substation. There is an apportioning procedure which is approved by the state nodal agency for apportioning the electricity to each and every customer. The project uses Suzlon's wind energy technology. The project activity implements S95 model 2.1MW WTGs. The total emission reductions for the current monitoring period are 513,733 tCO_{2e}.

There was no activity at the site prior to implementation of the project activity (Greenfield). The electricity generated by the project is exported to the Indian grid. The project activity will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. Since wind power is Greenhouse Gas (GHG) emissions free, the power generated will prevent the anthropogenic gas emissions generated by fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas.

² <http://www.cea.nic.in/reports/yearly/annual rep/2009-10/ar 09 10.pdf>

Assessment team checked the Commission of all the WTGs via the commissioning Certificates and found correct. The project is implemented as per the description in the registered PDD. No event observed during the current monitoring period which can alter or deviate from the methodology requirement. The details of the commissioning is as below:

S.No	Make	WEG-HTSC No.	Commissioned on
1	Suzlon	KD01	20/07/2012
2	Suzlon	KD02	20/07/2012
3	Suzlon	KD03	20/07/2012
4	Suzlon	KD04	20/07/2012
5	Suzlon	KD05	20/07/2012
6	Suzlon	KD06	20/07/2012
7	Suzlon	KD07	20/07/2012
8	Suzlon	KD58	30/03/2012
9	Suzlon	KD 27	30/03/2012
10	Suzlon	KD 28	30/03/2012
11	Suzlon	KD12	30/03/2012
12	Suzlon	KD13	30/03/2012
13	Suzlon	KD 14	30/03/2012
14	Suzlon	KD 24	23/03/2012
15	Suzlon	KD 40	23/03/2012
16	Suzlon	KD 78	30/03/2012
17	Suzlon	KD 76	28/03/2012
18	Suzlon	KD 67	28/03/2012
19	Suzlon	KD 29	28/03/2012
20	Suzlon	KD 54	27/03/2012
21	Suzlon	KD 77	27/03/2012
22	Suzlon	KD 68	27/03/2012
23	Suzlon	KD 79	27/03/2012
24	Suzlon	KD 30	27/03/2012
25	Suzlon	KD 35	14/03/2012
26	Suzlon	KD 37	14/03/2012
27	Suzlon	KD 39	14/03/2012
28	Suzlon	KD 59	14/03/2012
29	Suzlon	KD 60	14/03/2012
30	Suzlon	KD 61	14/03/2012
31	Suzlon	KD 57	14/03/2012
32	Suzlon	KD 36	18/02/2012
33	Suzlon	KD 38	25/03/2012
34	Suzlon	KD 55	25/03/2012
35	Suzlon	KD 56	25/03/2012
36	Suzlon	KD 82	10/09/2012

Assessment team confirms following during the verification site visit:

1. Start date of the project activity is 18th February 2012 as mentioned in the registered VCS PD
2. An undertaking letter has been submitted by PP for double counting with any other GHG program. PP also has given a written declaration that project has not claimed other form of GHG credit for the concerned monitoring period. Assessment team also checked that the projects are

not registered under the REC mechanism of India and the same can be cross-checked at <https://recregistryindia.nic.in>. However, the project is registered under CDM mechanism however, PP has given a written declaration that the credit claimed under VCS for the current monitoring period is not claimed under any other GHG mechanism.

3. The project is registered under Clean Development Mechanism (CDM) of UNFCCC with 10 years crediting period (Reference No: 9342) on 31st Dec 2012.³ Crediting period of the project under CDM starts on 31st December 2012 and ends on 30th December 2022. The project has begun generating GHG emission reductions from 18th February 2012. Hence, crediting period for VCS begins on 18th February 2012 and ends on 17th February 2022 considering 10 years fixed crediting period. The project proponent will also not claim GHG emission reductions under two schemes for the same period.
4. Project location is confirmed by the assessment team during the site visit. Assessment team also checked with the GPS meter regarding the latitude and longitude of the project site and confirm that the details as mentioned in the registered PDD is correct. The detail is as below:

S. No.	Loc. No.	LATITUDE			LONGITUDE		
		Deg	Min	Sec	Deg	Min	Sec
1	KD-001	27	5	35.4	70	59	59
2	KD-002	27	5	54.9	70	59	53.5
3	KD-003	27	6	16.8	70	59	54.4
4	KD-004	27	6	27.3	70	59	42.5
5	KD-005	27	6	38.7	70	59	30.8
6	KD-006	27	6	49.8	70	59	18.6
7	KD-007	27	7	1.7	70	59	4.3
8	KD-012	27	7	26.1	70	59	48
9	KD-013	27	7	14.1	70	59	59.1
10	KD-014	27	7	1.8	71	0	9.9
11	KD-024	27	7	9.5	71	2	4.5
12	KD-027	27	7	36.3	71	1	28.8
13	KD-028	27	7	41.5	71	1	13
14	KD-029	27	7	51.5	71	0	54.8
15	KD-030	27	7	54.5	71	0	33.3
16	KD-035	27	8	40.9	71	0	46.3
17	KD-036	27	8	34.2	71	1	3.8
18	KD-037	27	8	27.5	71	1	23.9
19	KD-038	27	8	17.6	71	1	39.8
20	KD-039	27	8	10.4	71	1	56.5

³ <https://cdm.unfccc.int/Projects/DB/RWTUV1356681143.52/view>

21	KD-040	27	7	59.8	71	2	4.9
22	KD-042	27	7	44.8	71	2	35.6
23	KD-054	27	8	22.4	71	2	59.3
24	KD-055	27	8	30.7	71	2	49.9
25	KD-056	27	8	38.2	71	2	38.8
26	KD-057	27	8	45.1	71	2	26.5
27	KD-058	27	8	52.9	71	2	6.3
28	KD-059	27	9	2.5	71	1	51.7
29	KD-060	27	9	11	71	1	31.3
30	KD-061	27	9	17	71	1	17.4
31	KD-067	27	9	21.4	71	2	54.1
32	KD-068	27	9	14.6	71	3	9.3
33	KD-076	27	8	23.5	71	4	55.5
34	KD-077	27	8	39.3	71	4	47.2
35	KD-078	27	8	48.3	71	4	31.9
36	KD-079	27	9	2.9	71	4	29.8

5. Assessment team checked and found that the Project proponent of the project activity is as below for the current monitoring period:

Organization name	Bindu Vayu Urja Private Limited
Contact person	Ms. Mangal jyoti
Title	Deputy Manager
Address	1 st Floor, 8001, 8th Floor, Q-City, Nanakramguda, Gachibowli Hyderabad 500032, Telangana, INDIA
Telephone	-
Email	-

6. Assessment team also checked the details of other entity and found correct. The details are as below:

Organization name	EKI Energy Services Limited
Role in the project	Project Consultant
Contact person	Mr. Prakash Kr. Sahu
Title	Project Manager
Address	Office No. 201, EnKing Embassy, Plot No. 48, Scheme No. 78, Part II, Vijay Nagar INDORE – 452010, India.

Telephone	+91 99 31 158 863
Email	prakash@enkingint.org

7. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VER is 7.93% lower than the estimated emission reduction which is due to low PLF during the monitoring period.

The details calculation is as follows:

		As per PDD	For Monitoring Period	
Particulars	Unit	Ex-ante Values	Ex-ante Values	Actual Values
Intalled Power Generation Capacity	MW	75.60	75.60	75.60
Meter Reading for Period	Days	365	1606	1606
Total Hours	Hrs.	8,760	38,544	38,544
Plant Load Factor considered in Financials	%	20.10%	20.10%	18.51%
Net Power Export to Grid	MWh	133,113	585,699	539,240
Baseline emission factor considered	tCO ₂ /MWh	0.9527	0.9527	0.9527
Baseline Emissions	tCO ₂	126,816	557,995	513,733
Project Emissions	tCO ₂	0	0	0
Leakage Emissions	tCO ₂	0	0	0

VERs Generated for the Monitoring Period	tCO ₂	126,816	557,995	513,733
% difference in VER generation vs estimation	%	-7.93%		

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Scope: The scope is defined as an independent and objective review of the Monitoring report (MR) prepared as per the registered PD and registered approved methodology ACM0002 version 12.3.0. The 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 12.3.0. The verification was based on the requirements in the CDM Validation and Verification Standard (VVS version 01 for the project activity), CDM project standard version 01 for the project activity, CDM project cycle procedure version 01 for the project activity and VCS program guideline and standard version 3.7

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

Verification Process: The project assessment is based on the “Clean Development Mechanism Validation and Verification Standard version 01 for the project activity and VCS standard and program 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:

1. A desk review of the Monitoring report against the registered PD and final validation report;
2. Follow-up interviews with project participant;
3. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the VCS executive board.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ Certification 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 the identified criteria.

Appointment of the assessment team

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

The composition of audit team shall be approved by the Applus+Certification ensuring that the required skills are covered by the team.

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

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

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

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

The detail regarding the assessment team is provided below in this report as Appendix 3

Document review

The Monitoring report version 1 submitted by the PP was reviewed against the approved methodology, registered PD, final validation report and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report below in appendix 1

Follow-up interviews

A site visit is conducted by Applus+ Certification performed interviews, telephone conferences, and physical site inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the appendix 2.

The final MR Version 02 submitted by PP on 03/08/2018 serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a verification of the final documentation including the verification report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the positive verification opinion and relevant documents are submitted to the VCS board through the VCS web-platform

2.2 Document Review

The details of the document observed during the verification process are listed below in Appendix 1 of this report

2.3 Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Jyoti	Ms. Mangal	(Deputy Manager)	10/06/2018	Implementation of the project and monitoring	Mr. Sukanta Das
2	Joshi	Sandeep	Villager	10/06/2018	Implementation of the project and monitoring	Mr. Sukanta Das
2	Sonthalia	Gaurav	Villager	10/06/2018	Baseline emission calculation, achieved emission reduction for the monitoring period, monitoring process	Mr. Sukanta Das

2.4 Site Inspections

Duration of on-site inspection: 10/06/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring. Assessment team also checked that whether the monitoring plan as described in the VCS PD is actually practised onsite. Also assessment team checked any change in host country criteria which may affect the baseline of the project activity.	The wind power project is located in Kaladonger Site of Jaisalmer District Rajasthan State, India	10/06/2018	Mr. Sukanta Das

2.5 Resolution of Findings

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues from validation which need to be clarified for Applus+ Certification's positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the appendix 2.

The final MR Version 2 submitted by PP on 03/08/2018 serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	00	00
Description of project activity	00	01	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
Applicability of methodology and standardized baseline	00	00	00
Deviation from methodology	00	00	00
Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
Project boundary	00	00	00
Establishment and description of baseline scenario	00	00	00
Demonstration of additionality	00	00	00

Emission reductions	00	01	00
Calibration details	00	01	
Monitoring plan	00	00	00
No Net harm assessment	00	01	
Local stakeholder consultation	00	01	
Others (please specify)-Matter related to breakdown details	00	02	00
PP declaration – Related to participation in other GHG program for the monitoring period			
Total	00	07	00

The list of findings and there resolution is presented in Appendix 2 of this report.

2.5.1 Forward Action Requests

This is 2nd periodic verification of the project activity and no FAR raised from previous 1st verification.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

This section is not applicable for present verification.

3.2 Methodology Deviations

This section is not applicable for present verification.

3.3 Project Description Deviations

This section is not applicable for present verification. .

3.4 Grouped Project

This is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the verification site visit it was concluded that the project is implemented as per the requirement of the registered PD and Final Validation report. During the current monitoring period it was observed that no unforeseen incident/event evolved which can impact the operation of the project activity. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team.

CAR 01 is however raised regarding details of the Feeder location of the individual project location and CAR 02 is raised for the details of downtime/breakdown records.

Feeder details are provided which is confirmed by the assessment team during the verification site visit and also from the individual joint meter statement by state electricity board (third party, Govt source) in

where the feeder details are mentioned. The Feeder details are included in the MR and thus the CAR is closed.

Breakdown log sheets for individual power project i.e. Wind turbines is submitted by PP. There was no breakdown during the monitoring period. Scheduled maintenance was carried out as per the instruction of the manufacturer and the same is acceptable to the assessment team. CAR 02 is thus closed.

Project location is confirmed by the assessment team during the site visit. Assessment team also checked with the GPS meter regarding the latitude and longitude of the project site and confirm that the details as mentioned in the registered PDD are correct. The detail is as below:

S. No.	Loc. No.	LATITUDE			LONGITUDE		
		Deg	Min	Sec	Deg	Min	Sec
1	KD-001	27	5	35.4	70	59	59
2	KD-002	27	5	54.9	70	59	53.5
3	KD-003	27	6	16.8	70	59	54.4
4	KD-004	27	6	27.3	70	59	42.5
5	KD-005	27	6	38.7	70	59	30.8
6	KD-006	27	6	49.8	70	59	18.6
7	KD-007	27	7	1.7	70	59	4.3
8	KD-012	27	7	26.1	70	59	48
9	KD-013	27	7	14.1	70	59	59.1
10	KD-014	27	7	1.8	71	0	9.9
11	KD-024	27	7	9.5	71	2	4.5
12	KD-027	27	7	36.3	71	1	28.8
13	KD-028	27	7	41.5	71	1	13
14	KD-029	27	7	51.5	71	0	54.8
15	KD-030	27	7	54.5	71	0	33.3
16	KD-035	27	8	40.9	71	0	46.3
17	KD-036	27	8	34.2	71	1	3.8
18	KD-037	27	8	27.5	71	1	23.9
19	KD-038	27	8	17.6	71	1	39.8
20	KD-039	27	8	10.4	71	1	56.5
21	KD-040	27	7	59.8	71	2	4.9
22	KD-042	27	7	44.8	71	2	35.6
23	KD-054	27	8	22.4	71	2	59.3
24	KD-055	27	8	30.7	71	2	49.9
25	KD-056	27	8	38.2	71	2	38.8
26	KD-057	27	8	45.1	71	2	26.5
27	KD-058	27	8	52.9	71	2	6.3
28	KD-059	27	9	2.5	71	1	51.7
29	KD-060	27	9	11	71	1	31.3

30	KD-061	27	9	17	71	1	17.4
31	KD-067	27	9	21.4	71	2	54.1
32	KD-068	27	9	14.6	71	3	9.3
33	KD-076	27	8	23.5	71	4	55.5
34	KD-077	27	8	39.3	71	4	47.2
35	KD-078	27	8	48.3	71	4	31.9
36	KD-079	27	9	2.9	71	4	29.8

Assessment team also checked the Technical details of the WTGs installed onsite. The same is checked during the onsite visit from the number plate capacity of each WTGs and also cross checked from the technical manual of the Manufactures. The detail is as below:

OPERATING DATA	
Rated power	2100 KW
Rotor speed	12.1 to 17.6 rpm
Power regulation	Active pitch regulated
Cut-in wind speed	3.5 meter/second
Rated wind speed	11 meter/second
Cut-off wind speed	25 meter/second
Restart wind speed	23 meter/second
Wind class	IEC IIA
Estimated service life	20 years
Ambient temperature range-operation	-10°to+ 40°C
A factor	9.59 m/s
ROTOR DATA	
Diameter	95 meter
Rotor cone angle	5°
Rotor speed at rated power	15.83 rpm
Tip speed at rated power	78.7 m/s
Swept area	7085 metre ²
BLADES	
Type	SUZLON SB46
Length	46.3 m
Material	Glass fibre reinforced plastic / Epoxy
Type of aerodynamic brake	
GENERATOR	
Type	Asynchronous 3 phase induction generator with slip rings operated with rotor circuit inverter system
Rated power	2.1 MW
Number of poles/Synchronous speed	4/1500 rpm
Frequency	50 Hz
Rated generator speed	1568 rpm
TOWER	
Type	Tubular steel tower

Tower Height	80m
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Assessment team checked the commissioning certificate and confirmed that the date of Commission for the WTGs is correct.

The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period. The project design as mentioned in the registered PD is implemented and thus no deviation is envisaged for the same.

All required monitoring equipment's and procedures as mentioned in the registered PD are available and implemented in an appropriate manner.

It was observed that the monitoring plan was implemented as per the requirement of the registered PD and Final Validation report. The organisational role and responsibility as mentioned in the registered PD is followed onsite. All the monitoring equipment was calibrated as per the specified interval in the registered PD. All the emergency preparedness as mentioned in the registered PD is followed onsite and no discrepancies were found regarding the same.

It was also observed during the verification process that project is not rejected by any other GHG program around the world. CAR 05 however is raised for the same. Please refer Appendix 2 of this report for the detail closure of the CAR.

The project is registered under CDM mechanism however VERs generated from this verification will not be used for other trading program to avoid any kind of double counting. The same is confirmed by the PP during the verification site visit. Assessment team also conducted independent review regarding the same and found that the statement of the PP is accurate and project is not involved in any other kind of GHG trading for the present verifications/monitoring period.

It was also observed during the verification process is that project is not rejected by any other GHG program around the world. The project is registered by CDM/VCS board and the registered PD and registered FVR is used to assess the present verification. The following web sites were checked to confirm the same:

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

Assessment team hereby also confirms from the declaration made by PP the projects are not registered under the REC mechanism of India and the same is cross-checked at <https://recregistryindia.nic.in>. Moreover as per state tariff policy the project is not eligible to receive REC benefits as it is selling power to State electricity grid.

The assessment team observed that the project is in line with the registered PD, FVR and approved methodology and thus no clarification/deviation is sought.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the VCS PD. 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	CAR 03 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR
Conclusion	The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor. The regional grid in this case would be the 'NEWNE' Formula Used:- $BE_y = EG_{BL,y} * EF_{CO2,grid,y}$ Where BE_y= Baseline emission for year 'y' EG_{BL,y} = Quantity of net electricity supplied to the grid during the year y ; and EF_{CO2,grid,y}= Emission factor of the Grid Ex ante Parameters: EF_{grid,CM,y}, EF_{grid,BM,y}, EF_{grid}, OM_{simple} were mentioned as ex-ante fixed parameter. Assessment team checked the values, source of data, choice of data, purpose of the data mentioned in the MR from the registered PDD and confirms that the similar approach was considered for the current monitoring period also. The values for EF_{grid,CM,y} = 0.9527 tCO₂/MWh- Assessment team Confirmed that the value is as per the registered PDD EF_{grid,BM,y} = 0.8587 tCO₂/MWh- Assessment team Confirmed that the value is as per the registered PDD EF_{grid,OMsimple,,y} = 0.9841 tCO₂/MWh- Assessment team Confirmed that the value is as per the registered PDD 1. EF_{grid,OMsimple,y}: 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 2.2.1. EF_{grid}, OM, y is computed using the Simple Operating margin CO₂ emission factor. Simple Operating margin CO₂ emission factor is calculated from the weighted average 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 version 07 and registered PDD.

	Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct. 2. EFgrid,BM,y: Build Margin emissions factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor" 2.2.1. Build margin emission factor is the generation-weighted average emission factor of all power plants m during the most recent year y for which generation data is available. The value is considered from CEA version 07 and registered PDD. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct. 3. EFgrid,CM,y: Combined 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 2.2.1. 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 version 07 and registered PDD. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct. The value for EFgrid,OMsimple,y, EFgrid,BM,y and EFgrid,CM,y were considered from the CO2 baseline database (Version 07) published by Central Electricity Authority (CEA). The default value as mentioned in the registered PDD and MR are same. The value of combined margin in India is being given by CEA and thus assessment team conclude that the value is correct and appropriate. The default value in turn is used for baseline calculation as per the formula given in the registered PDD for the current monitoring period. <u>Ex-post parameter:</u> As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored: EGfacility,y: Quantity of net electricity generation supplied by the project/unit to the grid in year y The parameter is a sourced from primary source i.e. Monthly billing records issued by JVVNL. The Net electricity value is calculated from export and import values. The formula to calculate Net electricity value is (export-import). The practice is as per the registered PDD and approved methodology. The export and import value is provided by JVVNL for individual PP and same is checked for
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the current monitoring period for emission reduction calculation. PP has no role/control over this calculation and the same is found appropriate as per the onsite practice. The invoice is then raised by individual PP connected to meter via common feeder to state electricity board i.e. JVVN. Assessment team also found that for some month i.e. Dec 2012 and Jan 2014 of the monitoring period JMR billing cycle period and monitoring period are different (highlighted yellow in the ER sheet), hence the export of each WTG is apportioned based on controller data. However import of complete month is taken conservatively for Dec 2012 and Jan 2014. The Calculation is checked by the assessment team and found correct and conservative. The invoices are used for cross check mechanism and is as per the requirement of registered PDD and approved methodology. The meter reading is taken during a fixed billing cycle of every month and representative of electricity board and Operation and maintenance personnel onsite present during the process. Assessment team checked all the values of the electricity exported and electricity imported from the JMR sheets. The electricity meters are under the custody of the electricity board and calibrated by electricity board as per their standard procedures. The meters are calibrated in line with Indian grid code regulations for such installations. The baseline emissions are the product of electrical energy baseline EGBL, y expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors.

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y}$$

Where:

BE_y : Baseline Emissions in year y; t CO₂

EGBL,y: Energy baseline in year y; kWh

EFCO₂: Emission Factor in year y; t CO₂e/kWh

As per registered CDM PDD, combined margin emission factor is 0.9527 tCO₂/MWh.

Hence the baseline emissions for the project activity for the current monitoring period are as follows.

$$BE_y = EG_{BL,y} * EF_{CO_2} = 539,239.922 * 0.9527 = 513,733 \text{ tCO}_2\text{e (round down values)}$$

The project activity involves in harnessing wind power. So the emissions from the project are zero.

	Leakage emission is not applicable as per the requirement of the methodology. As per the applied methodology, emission reductions are calculated as follows: $ER_y = BE_y - PE_y$ = 513,733 tCO₂e (round down values). Where: ER_y Emission reductions in year y (tCO₂e/yr) BE_y Baseline emissions in year y (tCO₂e/yr) PE_y Project emissions in year y (tCO₂e/yr)=0 Hence, ER_y= BE_y
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4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the Calibration details of the monitoring meters with the calibration certificates.																						
Findings	CAR 04 was raised during the verification process. The description of the CAR and its closure is described below in Appendix 2 of this report																						
Conclusion	The metering arrangement is ABT bi-directional energy meters (main and check) at the State Electricity Board (SEB) substation. These meters record several parameters including electricity exported & imported. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading) electricity generation statements. Assessment team found that Since metering arrangement, monitoring practice, accuracy class, calibration interval is under control of state electricity board, the PP do not have all calibration certificates available with them. PP have calibration certificates dated 11/12/2013, 29/04/2016 and 16/05/2017. Calibration reports having validity of 1 years and PP don't have calibration report between December-2014 to April-2016 and April 2017 to May 2017, therefore error factor has been applied for the duration i.e. 01/12/2014 to 30/04/2016 and 01/04/2017 to 31/05/2017 as a conservative approach The details of the Calibration is as below: <table border="1"> <thead> <tr> <th>S. No</th><th>Meter Number</th><th>Meter Make</th><th>Accuracy Class</th><th>Calibration Date</th><th>Calibration Date</th><th>Calibration Date</th><th>Due Date</th></tr> </thead> <tbody> <tr> <td>1</td><td>UPP31771 (Main Sub-</td><td>Secure Meters</td><td>0.2 s</td><td>11/12/2013</td><td>29/04/2016</td><td>16/05/2017</td><td>16/05/2018</td></tr> </tbody> </table>							S. No	Meter Number	Meter Make	Accuracy Class	Calibration Date	Calibration Date	Calibration Date	Due Date	1	UPP31771 (Main Sub-	Secure Meters	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
S. No	Meter Number	Meter Make	Accuracy Class	Calibration Date	Calibration Date	Calibration Date	Due Date																
1	UPP31771 (Main Sub-	Secure Meters	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018																

		station Meter)	Limite d					
	2	UPP31772 (Backup Sub-station Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	3	UPP31774 (Main Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	4	UPP31776 (Backup Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	5	UPP31769 (Main Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	6	UPP31770 (Backup Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	7	UPP31766 (Main Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	8	UPP31783 (Backup Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	9	RJB78190 (Main Cluster Meter)	Secur e Meter s Limite d	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
	10	RJB78191 (Backup Cluster Meter)	Secur e Meter s Limite	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018

		d					
Assessment team confirms that all the energy meters (both main and check meter) installed at the substation are of accuracy class of 0.2s and are calibrated as per the national standards followed by the electricity board, but they are calibrated at least once in a year. The calibration of the energy meters installed at HT side of the transformer were carried out by Meter and testing division of the electricity board which is 3rd party organization and the same is acceptable to the assessment team. The Meter and testing division of the electricity board is accredited by NABL (National Accreditation Board for Laboratory, Govt of India) to carry out the testing of the meters which is as per the national regulation and thus traceability of the Calibration is also confirmed by the assessment team.							

4.4 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
NA	NA	NA	NA	NA

5 SAFEGUARDS

5.1 No Net Harm

No potential environment or socio-economic matter was found during the site visit. The project is renewable energy project and thus no negative impact observed onsite. CAR 06 is raised during the process and please refer Appendix 2 for the closure of the CAR.

The project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. The report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013. This report clearly mentioned that Wind power project activity operations do not result in direct air pollution, noise pollution. However, assessment team still conducted the No net harm assessment for some of the parameters and the result is described below.

S.No.	Indicator	Assessment team opinion
1	Air quality	The project generates clean energy which replaces the fossil fuel intensive electricity generation. Also report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013. This report clearly mentioned that Wind power plant operations do not result in direct air pollution.

		Adequate measures were taken to mitigate the envisaged impacts like spraying water on the road side to reduce dust level, etc. This was confirmed by the local stakeholders. Therefore, it is validated that mitigation measures were robustly implemented on ground for air quality issues project will have a positive impact on air quality.
3	Soil condition	There are negligible impacts envisaged during operation of the project activity. For mitigating the impacts during construction, various mitigation measures were taken which is validated from the plant records of PP and the interview with local villagers. The top soil excavated during construction, was stockpiled and used for compaction. The roads were not paved and soling was done with excavated earth & rock material, so land disturbance could be minimized. It was also confirmed that, the vegetation done at site helps for soil erosion. The same is confirmed during the stakeholder meetings during onsite visit. Therefore, it can be concluded that the project has no effect on soil conditions during its operation because it has no waste coming out.
4	Biodiversity	During the validation site visit it was observed that the condition of ground vegetation will be gradually improved; No rare species has been found in the around area. The project site is not on the migration route of migratory bird. As

		Such Wind power plant do not have any obstruction in the path of migratory birds. With the implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. NO negative impact envisaged.
5	Employment Generation	The project activity employed local population as skilled workers as well as security guards which were envisaged during the validation site visit. The personnel employed by the project activity are also provided trainings and exposed to various awareness programs therefore a positive indicator has been accepted.
6	Livelihood of the poor	The project is associated with infrastructure development like roads in the nearby areas and promoting economic activities like grants to local school and communities temples etc. Also, project employed local villagers as guards for the security of power project. Positive impact envisaged. .

5.2 Local Stakeholder Consultation

All the stakeholders are happy with the implementation and operation of the project activity and no negative comments envisaged for the project activity. There was no change in technical project description from the registered VCS PD. Assessment team confirmed the same during the verification site visit. However CAR 07 is raised during the verification process. Please refer Appendix 2 for the detail closure of the CAR. Also, as best practice method PP also placed a grievance register onsite to record any grievance from the stakeholders during and after the implementation of the project activity. Assessment team checked the grievance register maintained onsite and no negative comments were observed for the project activity. Local people are happy as the project generated employment opportunities and thus the living standards in and around the vicinity of the project is increased and thus assessment team confirms that local stakeholders have no issue with this project activity after implementation and continuous operation.

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

Name of the stakeholder	Sandeep Joshi
Occupation	Villager

DOE QUESTION: Did PP promised employment opportunity?

Answer: Yes, PP told us that employment will be generated and the locals will be given priority.

DOE also like to conclude that during the site visit it was observed that local people were employed for security and operation related work like water spraying, vegetation improvement and other unskilled work. DOE also found that skilled local persons were also employed by the organization for the operation and maintenance of the power plant.

Name of the stakeholder	Gaurav Sonthalia
Occupation	Villager
DOE questions: Did the power plant discharge any harmful pollutants? Answer: NO the plant does not discharge any harmful pollutants. DOE questions: Did the power plant destroy any crop fields? Answer: The plant is implemented in barren land and there were no any fertile land or crop which is damaged.	

6 VERIFICATION CONCLUSION

Applus+ Certification has been engaged by M/s Bindu Vayu Urja Private Limited (BVUPL) to perform the 2nd periodical verification of the “Kaladonger wind power project in Rajasthan”

The management of M/s Bindu Vayu Urja Private Limited (BVUPL) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered VCS PD and the applied methodology ACM0002 version 12.3.0.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification team can confirm that:

- the project is operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology;
- the monitoring process in Monitoring Report is as per the PD
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

Verification period: 07-January-14 to 31-May-18 (inclusive of both days)

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)
2014	129060	0	0	129060
2015	106887	0	0	106887
2016	127672	0	0	127672
2017	114157	0	0	114157
2018	35957	0	0	35957
Total	513,733	0	0	513,733

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1	NA	Commissioning certificates of the WTGs implemented in the project site.	NA	Project participant
2	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
3	NA	Technical specifications of wind turbine generators from manufacturers	Manufacturer technical specifications	Project participant
4	NA	Power Purchase agreement for the project activity	NA	Project participant
5	NA	Registered PD dated 26/08/2013, version 02 http://www.vcsprojectdatabase.org/#/project_details/1194	NA	Project participant
6	NA	Registered Final Validation report 24/12/2012 version 01 Final Verification report (1st periodic)- dated 26/08/2013 version 01 http://www.vcsprojectdatabase.org/#/project_details/1194	NA	Project participant
7	NA	Emission Calculation sheet version 01 Emission Calculation sheet version 02	22/02/2018 03/08/2018	Project participant
8	NA	The operational lifetime of the project activity from the manufacturer=(Technical specifications)	Manufacturer technical specifications	Project participant
9	NA	RBI: Reserve Bank of India	Reference link is provided.	Independent

		www.rbi.org.in Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in Income tax act 1961 http://law.incometaxindia.gov.in/DIT/ VCS: Verified Carbon Standard www.v-c-s.org		Search
10	NA	Tools/ guidelines used in the project activity • Tool to determine the remaining lifetime of the project activity in line with Annex 15 EB 50 • Tool to calculate the emission factor for an electricity system version 03 • Glossary of CDM terms version 07 • VCS verification report template version 03	UNFCCC CDM web site	UNFCCC
11	NA	JMR records for the complete monitoring period	JMR records	PP
12	NA	MR version 01 MR version 02	22/02/2018 03/08/2018	PP
13	NA	Invoices for the complete monitoring	Invoice	PP

		period		
14	NA	Break down details of the complete monitoring period	Log sheet	PP
15	NA	Declaration regarding no participation in other GHG program for the concerned monitoring period	Declaration dated 28/07/2018	PP

APPENDIX 2:

**CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD
ACTION REQUESTS (CAR/CL/FAR)**

CAR ID	01	Date: 30/06/2018
Description of CAR		
During the site visit and subsequent document review it was observed that the details of feeder wise location of the Wind turbines is missing in the MR. Corrective action is sought in the respective section of the MR. The details implementation of the project activity timeline is missing in the MR. Supporting documents such as Commissioning certificates, Power purchase agreement and O&M agreements are missing. The technical details supporting documents are not submitted to the assessment team. Corrective action is sought for the same.		
Project participant response		Date: 28/07/2018
<i>Feeder wise details has been updated in Appendix 1 of MR V2.</i> <i>Implementation dates of the project activity has been updated in section 1.7 and 2.1 of the MR V2. Supporting documents such as commissioning certificates, power purchase agreement, O&M agreement, JMR, Invoices, Daily generation reports and Calibration reports is being provided with this submission.</i>		
Documentation provided by project participant		
<i>MR V2, Commissioning Certificates, Power Purchase Agreement, O&M Agreement, JMR, Invoices, Daily generation reports, technical details of WTGs and Calibration reports.</i>		
DOE assessment		Date: 22/08/2018

The feeder details are now included in the revised MR version 02 which is as per the onsite practice. The detail of implementation of the project is also included in the revised MR version 02. All the supporting documents like *Commissioning Certificates*, *Power Purchase Agreement*, *O&M Agreement* are checked and found correct by the assessment team.

The technical details of the WTGs are cross checked from the manufacturer specification and also checked during the verification site visit. CAR is thus closed.

CAR is thus closed.

CAR ID	02	Date: 30/06/2018
Description of CAR		
The breakdown details of the Wind turbines are missing in the MR. However, the supporting document regarding the breakdown details are not provided to the assessment team. Corrective action is sought in this regard.		
Project participant response		Date: 28/07/2018
<i>Breakdown details of the Wind turbines has been updated in Appendix 2 of the MR V2.</i>		
Documentation provided by project participant		
<i>MR V2 and Breakdown sheet.</i>		
DOE assessment		Date: 22/08/2018
The Breakdown details are checked from the log sheets for the complete monitoring period. The power plant undergone scheduled maintenance and breakdown and no unforeseen incident observed during the current monitoring period. CAR is thus closed.		

CAR ID	03	Date: 30/06/2018
Description of CAR		
The JMR sheets and Invoice for the complete monitoring period is missing. Emission reduction value is thus reserved and will further be analysis on the submission of the documents.		
The comparison of actual VER and estimated VER is also missing in the MR.		
Corrective action is sought.		

Project participant response	Date: 28/07/2018
<i>JMR and Invoices for the complete monitoring period is being provided. Emission reduction comparison has been updated in the MR V2.</i>	
Documentation provided by project participant	
<i>JMR, Invoices and MR V2 and ER V2.</i>	
DOE assessment	Date: 22/08/2018
The JMR sheets and invoices for the complete monitoring period is checked and found correct. The estimation of ER for the monitoring period is found correct. CAR is thus closed.	

CAR ID	04	Date: 30/06/2018
Description of CAR		
The calibration certificates for the complete monitoring period is missing. The details are also missing in the MR. Corrective action sought for the same		
Project participant response	Date: 28/07/2018	
PP have calibration certificates dated 11/12/2013, 29/04/2016 and 16/05/2017. Calibration reports having validity of 1 years and PP don't have calibration report between Decmber-2014 to April-2016 and April 2017 to May 2017, therefore error factor has been applied for the duration i.e. 01/12/2014 to 30/04/2016 and 01/04/2017 to 31/05/2017 as a conservative approach.		
Documentation provided by project participant		
Calibration report.		
DOE assessment	Date: 22/08/2018	
The calibration certificate is checked and found correct. The error factor is also introduced since the calibration frequency is not followed during the current monitoring period. Estimation of ER is thus correct. CAR is thus closed.		

CAR ID	05	Date: 30/06/2018
Description of CAR		
As per section 1.9 of the VCS MR, the project is not participated in other GHG program and has not intended to pursue credits from other GHG program for the concerned monitoring period. Supporting documents and details regarding the same is missing in the MR. Also, PP needs to justify whether REC benefits is taken for the present Monitoring period covered under VCS. Corrective action is sought for the same.		
Project participant response		Date: 28/07/2018
Section 1.9 of VCS MR has been updated, this project is already registered with UN CDM mechanism having project ID 9342. PP will not claim CERs for this monitoring period. This project is not registered with Indian REC mechanisms, same could be verified from the REC registry India website (https://recregistryindia.nic.in/).		
Documentation provided by project participant		
MR version 02		
DOE assessment		Date: 22/08/2018
The project is registered under UNFCCC project mechanism. The declaration from the PP is checked and found correct. The project is not claiming any benefits from other GHG mechanism for the current monitoring period. CAR is thus closed.		

CAR ID	06	Date: 30/06/2018
Description of CAR		
During the document review it is observed that "No net Harm" details are missing in the MR. Moreover, supporting documents are not shared with DOE. Corrective action is sought in this regard in the respective section of the MR.		
Project participant response		Date: 28/07/2018
No net harm of the MR has been updated		
Documentation provided by project participant		
MR V2.		

DOE assessment	Date: 22/08/2018
The No Net Harm assessment is now updated in revised MR version 02 and found correct. CAR is thus closed.	

CAR ID	07	Date: 30/06/2018
Description of CAR		
During the document review it is observed that "Local Stakeholder" consultation details are missing in the MR. Moreover, supporting documents are not shared with DOE. Corrective action is sought in this regard in the respective section of the MR.		
Project participant response		Date: 28/07/2018
<i>Local stakeholder section of the MR has been updated.</i>		
Documentation provided by project participant		
MR V2.		
DOE assessment		Date: 22/08/2018
The local stakeholder consultation section for the current monitoring is now updated and found correct. CAR is thus closed.		

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor / Technical expert	OR	Das	Sukanta	TQC-Outsourced entity	Yes	Yes	Yes	Yes

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR)	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Sendin	Juan	Applus+ Certification B.U. Managing Director

Short CVs of the Team:

- Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than Nine (9) years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is panelled with APPLUS certification to carry out GHG audit.
- Meng (Simon) Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Assessment team and ISO 9001/14001 Lead Auditor for 3.5 years

APPENDIX 4: ABBREVIATIONS

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
JMR	Joint Metering reading

RBI	Reserve Bank Of India
PP	Project Participant

APPENDIX 5: CALIBRATION DETAILS OF THE METERS

S. No	Meter Number	Meter Make	Accuracy Class	Calibration Date	Calibration Date	Calibration Date	Due Date
1	UPP31771 (Main Sub-station Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
2	UPP31772 (Backup Sub-station Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
3	UPP31774 (Main Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
4	UPP31776 (Backup Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
5	UPP31769 (Main Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
6	UPP31770 (Backup Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
7	UPP31766 (Main Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
8	UPP31783 (Backup Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
9	RJB78190 (Main Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018
10	RJB78191 (Backup Cluster Meter)	Secure Meters Limited	0.2 s	11/12/2013	29/04/2016	16/05/2017	16/05/2018

Assessment team found that since metering arrangement, monitoring practice, accuracy class, calibration interval is under control of state electricity board, the PP do not have all calibration certificates available with them.

PP have calibration certificates dated 11/12/2013, 29/04/2016 and 16/05/2017. Calibration reports having validity of 1 years and PP don't have calibration report between December-2014 to April-2016 and April 2017 to May 2017, therefore error factor has been applied for the duration i.e. 01/12/2014 to 30/04/2016 and 01/04/2017 to 31/05/2017 as a conservative approach