ARYAN COAL 15 MW WIND POWER PROJECT IN MAHARASHTRA, INDIA

Document Prepared By

LGAI Technological Center S.A. (Applus+ Certification)

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Prepared By	LGAI Technological Center, S.A. (Applus+ Certification)
Contact	Campus UAB – Ronda de la Font del Carme, s/n 08193 Bellaterra – Barcelona (Spain) Tel: +34 93 567 20 08 Fax: +34 93 567 20 01

	www.appluscertification.com agustin.calle@applus.com carla.debat@applus.com
Approved By	LGAI Technological Center S.A. (Applus+ Certification) VVB Technical Manager – Mr. Agustín Calle de Miguel
Work Carried Out By	Dr. Atul Takarkhede - Lead Auditor / Technical Expert:

Summary:

Verification purpose: LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Aryan Coal Benefications Pvt.Ltd[1]." to perform the 3rd periodic verification of the "Aryan Coal 15 MW Wind Power Project in Maharashtra, India". The main purpose of this verification activity is to have an independent third party for the assessment of the project design, monitoring report to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements.

The project activity involves installation of 15 MW (12 x 1.25 MW) Wind Electric Generators (WEGs) at Village Ghatnandra in Sangli District of Maharashtra, India. The project is registered with VCS with Project ID 298[2]. The electricity generated from the WTGs are fed into regional grid through Karnataka Power Transmission Company Limited (KPTCL) to southern grid which is now under the purview of the INDIAN Grid.

Start date of the project activity is 29-September-2005 which is the date of commissioning of the 4 WTGs from the project activity & thus from this date on which project activity started generating emission reductions. Assessment team checked the commissioning dates of the WTGs and found start date to be correct & inline with VCS standard version 4.1. The monitoring period for this VCS verification is from 01-January-2013 to 27-March-2016 (including both days) and the project activity achieved 58,146 tCO_2e emission reductions during this monitoring period thereon displacing 64,181,08 MWh amount of electricity from the generation-mix of power plants connected to the Indian Grid, which is mainly dominated by thermal/fossil fuel based power plant.

The scope of the verification is the independent and objective review of the Monitoring Report (MR). The MR is reviewed against the relevant criteria (see above) 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 for project activities, version 02.0, review against registered PD and Final Validation report, CDM Project Standard for project activities, version 02.0, CDM project cycle procedure for project activities, version 02.0 and VCS program guideline version 4.0 and VCS standard version 4.1.

[1] Also Known as ACB (India) Ltd

[2] https://registry.verra.org/app/projectDetail/VCS/298

A risk based approach has been followed to perform this verification activity. In the course of verification, 06 Corrective Action request (CAR) and 01 Clarification Requests (CLs) were raised and successfully closed. No FAR was raised during this verification. 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 LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

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 document verifications. The entire documents checked/WTGs verification conducted to arrive at positive verification conclusions.

CONTENTS

1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Mineral Enterprises Limited" to perform the 3rd periodic verification of the "Aryan Coal 15 MW Wind Power Project in Maharashtra, India" under VCS standard version 4.1. 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 "AMS-I.D - Version 14"
- the project's monitoring plan is assessed against "AMS-I.D - Version 14"
- 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 version 4.0 and VCS standard version 4.1
- CDM validation and verification standard for project activities, Version 02.0
- CDM Project Standard for project activities, version 02.0
- CDM project cycle procedure for project activities, version 02.0
- VCS standard v4.1
- VCS program guideline v4.0

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 is defined as an independent and objective review of the Monitoring report (MR) prepared as per the registered PD and registered approved methodology AMS-I.D - Version 14. 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 version 4.1, including the approved baseline and monitoring methodology AMS-I.D- Version 14. The verification was based on the requirements in the CDM validation and verification standard for project activities, Version 02.0, CDM Project Standard for project activities,

version 02.0, CDM project cycle procedure for project activities, version 02.0 and VCS program guideline version 4.0 and VCS standard version 4.1

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. In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. It follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of ER, omission or misstatement. Verification team conducted remote audit due to pandemic situation and equipment, technical details and metering/monitoring arrangement verified through photos/certificate shared by PP. The verification team has reviewed all the documents like commissioning certificates, technical specification, O&M practices, JMR, invoices, training records, grievance registers etc.

1.3 Level of Assurance

Applus+ Certification has planned and performed the verification by obtaining evidence and other information and explanations that assessment team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated. All documentary evidences were checked, a remote audit was conducted due to pandemic situation and technical details and metering/monitoring arrangement verified through photos/certificate shared by PP to arrive at a verification conclusion by the assessment team.

In our opinion, the estimated GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology “AMS-I.D - Version 14 and the VCS standard version 4.1.

1.4 Summary Description of the Project

The project activity involves installation and operation of a 15 MW Wind Electric Generators (WEGs) in Maharashtra state of India. The project activity involves Suzlon make 12 WEGs (12*1.25 MW). The all 12 WTGs were commissioned. The project activity is promoted by Aryan Coal Benefications Pvt. Ltd. and acting as project proponent.

The monitoring period of this VCS verification covered from 01-January-2013 to 27-March-2016 (inclusive of both dates) and the project activity is achieved 58,146 tCO_2e emission reductions during this monitoring period.

Assessment team checked the Commission of WTG with the commissioning Certificate and found correct. The project is implemented as per the description in the registered

PD. No event observed during the current monitoring period which can alter or deviate from the methodology requirement.

2 VERIFICATIONPROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the "CDM validation and verification standard for project activities, Version 02.0 and "VCS standard Version 4.1 and program guideline version 4.0" 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 natio nal business environment, Applus+Certificationhas composed a project assessment te am in accordance with the appointment rules in the internal Quality Management Syste m of Applus+ Certification.

The composition of audit team shall be approved by the Applus+Certificationensuring th at 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 s hall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Dr. Atul Takarkhede	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 01 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 remote audit is conducted by Applus+ Certification. Audit team performed interviews, via video/telephone conferences 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 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

A remote audit was conducted for the project activity on 27-Janaury-2021. Remote audit was conducted due to ongoing COVID-19 pandemic situation in the entire state of India. Taking into account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return). Moreover, The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.1.

The VVB has taken alternative measures to reach reasonable level of assurance and conducted remote audit through Skype/Telephone with site personal & consultant (refer section 2.3) with the PP representative. This is also in line with the COVID-19 travel guidance for projects of VERRA.

Technical details & metering/monitoring arrangement verified through onsite photographs/name plates and calibration certificates shared by PP. All the documents were cross checked to ensure conservative estimation of emission reduction.

During the remote audit, the PP representatives were questioned about the implementation of the project activity. Several topics like the verification of commissioning date of meters, the generation, recording, and monitoring of the data and

the error accountability were discussed. To cross check the information provided by PP, various documents like technical specifications, commissioning certificates, PPA, JMR sheets, invoice, calibration certificates, s, etc. were also verified. The names of the persons interviewed during remote audit through Zoom & telephonic interview is given below;

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Jain	H M	PP representative	27-Janaury -2021 (Remote Audit)	Project Implementation, JMR & invoicing procedure, calibration, grievance mechanism	Dr. Atul Takarkhede
2.	Singh	Ajit Kumar	Site In-charge		Management practices, data storage, QA/QC	
3.	Saha	Tapti	EKI Energy Services Limited		GHG calculations, MR and ER preparation, Data collection, data storage, QA/QC	
4.	Dutta	Supratik	EKI Energy Services Limited		GHG calculations, MR and ER preparation, Data collection, data storage, QA/QC	

2.4 Site Inspections

Duration of Remote Audit: 27-Janaury-2021				
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.	Village Ghatnandra Sangli District Maharashtra States, India (Through Zoom)	27-Janaury-2021	Dr. Atul Takarkhede

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 02 submitted by PP 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	01	03	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	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	01	00
Others (please specify	00	00	00
Total	**01**	**06**	**00**

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

2.5.1 Forward Action Requests

This is 3rd periodic verification of the project activity and no FAR was raised from validation or previous verification.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification as Applus + Certification holds the accreditation for validation of projects under this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is not registered any other GHG programs. The same is confirmed by check the UNFCCC web site. the project activity is not availing any REC benefits and the same can be confirmed from publicly available link of REC generators.

Web-link:
https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens

Further, the project proponent has provided undertaking for not availing other forms of environmental credit including REC for the same crediting period under consideration.

3.2 Methodology Deviations

This section is not applicable for present verification as no methodology deviation sought during this verification.

3.3 Project Description Deviations

PP has sought deviation for correction in length of crediting period from 28-March-2016 to 27-March-2016. As per VCS Standard, the length of fixed crediting period is 10 year. The start date of the crediting period of the project activity as per registered VCS PD is 28-March-2006 and the same is verified with the validation report. Thus, the end date of crediting period will be 27-March-2016. Hence the correction sough for the end date of crediting period is acceptable to VVB, VVB confirms that the deviation is appropriately described and justified and project remains compliance with the VCS rules. Hence the correction sough for the end date of crediting period is acceptable to VVB, Further, VVB confirms that there were no project descriptions deviations applied during the previous verifications.

3.4 Grouped Project

The project is not a grouped project. Hence, section not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the remote audit interviews with PP & plant in-charge and subsequent document verification; commissioning certificates, PPA, JMR and invoices, it was concluded that the project is implemented as per the requirement of the registered VCD PD and approved monitoring plan. During the current monitoring period, assessment team observed that no unforeseen incident/event evolved which can impact the operation of the project activity which was verified from breakdown records. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team and evident from JMRs.

The project activity is a 15 MW wind power project, employs 12 WTG of 1.25 MW each of Suzlon make for power generation. The purpose of the project activity is to generate clean electricity with utilization of wind energy. The WTG wise latitudes and longitudes are confirmed below:

Sr. No.	WTG No.	Survey No.	Village	District	State	Site Coordinates
1	G 13	1018	Ghatnandare	Sangli	Maharashtra	17°10' 10.4" N 74° 54' 23.8" E
2	G 14	1018/P	Ghatnandare	Sangli	Maharashtra	17°10' 21.5" N 74° 54' 22.1" E
3	G 15	1017	Ghatnandare	Sangli	Maharashtra	17°10' 34.5" N 74° 54' 12.7" E
4	G 17	1028	Ghatnandare	Sangli	Maharashtra	17°10' 11.8" N 74° 54' 04.7" E
5	G 18	1035	Ghatnandare	Sangli	Maharashtra	17°10' 21.8" N 74° 54' 59" E
6	G 19	1053	Ghatnandare	Sangli	Maharashtra	17°10' 33.3" N 74° 54' 56.1" E
7	G 21	1010	Ghatnandare	Sangli	Maharashtra	17°10' 0.1" N 74° 54' 49.4" E
8	G 22	1054	Ghatnandare	Sangli	Maharashtra	17°10' 11.4" N 74° 54' 44.2" E
9	G 27	1045	Ghatnandare	Sangli	Maharashtra	17°10' 22.8" N 74° 54' 24.3" E

Sr. No.	WTG No.	Survey No.	Village	District	State	Site Coordinates
10	G 28	998	Ghatnandare	Sangli	Maharashtra	17°10' 34.1" N 74° 54' 15.0" E
11	G 29	971	Ghatnandare	Sangli	Maharashtra	17°10' 46.1" N 74° 54' 09.6" E
12	G 30	927	Ghatnandare	Sangli	Maharashtra	17°10' 57.6" N 74° 54' 07.3" E

Verification team confirmed from the registered PD and from previous verification reports that the location of the project activity including the coordinates is same as mentioned in the registered VCS PD.

Assessment team checked the commissioning certificate and confirmed that the dates of Commission for the WTGs are correct. Assessment team also conform during interview with the PP representatives that there is no change in project design and the project is implemented as per the description provided in the VCS PD. WTG wise commissioning dates are given below:

Sr. No.	PP	WTG No.	Feeder No.	Commissioning Date
1.	ACB (India) Ltd	G13	5	30-September-2005
2.	ACB (India) Ltd	G14	5	30-September-2005
3.	ACB (India) Ltd	G15	5	30-September-2005
4.	ACB (India) Ltd	G17	5	30-September-2005
5.	ACB (India) Ltd	G18	5	30-September-2005
6.	ACB (India) Ltd	G19	5	30-September-2005
7.	ACB (India) Ltd	G21	5	30-September-2005
8.	ACB (India) Ltd	G22	5	30-September-2005
9.	ACB (India) Ltd	G27	6	29-September-2005
10.	ACB (India) Ltd	G28	6	29-September-2005
11.	ACB (India) Ltd	G29	6	29-September-2005
12.	ACB (India) Ltd	G30	6	29-September-2005

The project boundary includes the electricity generation equipment at the project site, Ghatnandre sub-station of Suzlon which connected with Indian grid.

Assessment team also checked the technical details of the installed WTGs from documents submitted by PP and previous verification reports. The same is cross checked from the

photographs of the number plates, module capacity etc. submitted by PP & also cross checked from the technical details from Manufacturer.

The brief technical details of the WTG are as follows:

Technical details of WTG

Item	Description
Make	SUZLON
Model No.	S 70
Rating in Kw	1250
Rotor Diameter (m)	70
Highest hub height	75
Type of tower (Tubular/lattice)	Tubular
Number of blades	3
Power Regulation (pitch/stall)	Pitch
Type of generator (synchronous/asynchronous)	Asynchronous
Single speed /Dual speed/variable (generator)	Dual
AC/DC/AC System (Yes/No)	No
Rated voltage (V)	690V(50M HZ), 600V(60 hz)
Geared/Gearless	Geared
Cut-in wind speed (m/s)	3m/s
Cut -out wind speed (m/s)	20 m/s
Rated wind speed (m/s)	12m/s
Survival Wind speed (m/s)	67m/s
Auxiliary Consumption (KWh)	Approx 1% of generation
Reactive energy requirement	Approx 10% of active energy
Scheduled Month/year of Commissioning	September 2005
Wind power density	289 watt/m sq. (at 30m)

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 the same is acceptable to the assessment team. All required

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

The organisational role and responsibility as mentioned in the registered PD is followed onsite. All the emergency preparedness as mentioned in the registered PD is followed onsite and no discrepancies were found regarding the same. Meters are calibrated as per calibration frequency in registered VCS PD. All the emergency preparedness as mentioned in the registered VCS PD is followed onsite and no discrepancies were found regarding the same. Thus, completeness of the monitoring plan confirmed and there are no any material discrepancies between the actual monitoring system and the plan provided in the registered PD.

Assessment team confirms following during the verification remote audit:

1. Start date of the project activity is 29-September-2005 as mentioned in the registered VCS PD.

2. An undertaking letter dated 05-February-2021 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*. 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. Assessment team confirms that this is the 3rd monitoring under VCS and covers the activity from 01-January-2013 to 27-March-2016 (inclusive of both dates). The project activity adopts 10 years crediting period. 01-April-2006 is the start date and ended on 27-March-2016.

   The GHG credits from 01-January-2013 to 27-March-2016 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the "Double Counting".

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

Organization name	Aryan Coal Benefications Pvt. Ltd.
Contact person	Mr. Ramesh Khanna
Title	Vice President
Address	Rao Tula Ram Marg, 18, Vasant Enclave, New Delhi-110057, Delhi, India

Telephone	+91-124-2719020
Email	rameshkhanna@aryancoal.com

5. 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	Tapti Saha
Title	Assistant Manager-Operation
Address	EnKing Embassy, Office No 201, Plot 48, Scheme 78, Part 2, Vijay Nagar, Indore- 452010, Madhya Pradesh, India
Telephone	+91 9770900207
Email	tapti@enkingint.org

6. 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 158,146 tCO_2e which is 24.6% lower than the estimated emission reductions reduction 77,125 tCO_2e (23,816 tCO_2e/365 days x 1182 days) during this monitoring period which is due to lower wind flow pattern and low PLF attained by the wind power plant during the current monitoring period.

SUSTAINABLE DEVELEOPMENT:

Ministry of Environment & Forests, Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for GHG projects.

Social well-being: The project activity has resulted in creating direct and indirect job opportunities for the local population on temporary and permanent basis. This results in the improvement in living standards of the local community. The installation of the renewable energy projects also led to development of basic infrastructure like roads, communication with the nearby cities etc. which also improved in living standards of the local population.

Economic well-being: The project activity has created direct and indirect job opportunities to the local community during installation and operation of the renewable energy projects. The investment for the project activity has led to the improvement in the economic activity in the local area.

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

Environmental well-being:

The project activity utilizes renewable energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. As renewable energy projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power. Being a renewable resource, to generate electricity contributes to resource conservation. Thus the project causes no negative impact on the surrounding environment.

In view of the above, the PP has considered that the project activity profoundly contributes to the sustainable development.

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the documents review of VCS PD and grievance register etc. The project is renewable energy project and thus no negative impact observed due to project activity.

Wind power projects are not included in the Schedule I of the EIA notification S.O.1533 (E) dated 14thSeptember 2006 and thus an EIA is not required. Ministry of Environment & forests vide their OM J-11013/41/2006 - IA II (I) dated 13th May 2011.

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[3]. This report clearly mentioned that solar/Wind power project activity operations do not result in direct air pollution, noise pollution. Moreover, also as per the Central Pollution Control Board of India notification[4] solar/wind project falls under White Category and are practically non-polluting.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. For on-going stakeholder's communication, PP have maintained feedback/complaint register at the site office. All the stakeholders are happy with the implementation and operation of the project activity and no negative comments envisaged for the project activity. Complaint/suggestion/feedback register is maintained at site as a part of

[3] https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf

[4] http://envfor.nic.in/sites/default/files/Latest_118_Final_Directions.pdf

ongoing communication with stakeholders in line with clause 3.16.17 of VCS Standard, ver. 4.0 and appropriate actions taken time to time by PP.

Assessment team checked the grievance register provided by PP and found that local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project. During current monitoring period three grievances were received related to repair of RO system, sitting arrangements and cleanness of road. The same were resolved by the PP (refer Section 2.2 of MR). Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

This section is not applicable as this project activity is a non-AFOLU project activity.

4.4 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 06 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	**Baseline Emissions:** The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case would be the 'Indian Grid' Formula Used:- $BE_y = EGy = EG_{,y} \times EF_{GRID}$ Where BE_y= Baseline Emissions (tCO_2/year) $EG_{,y}$ =Electricity generation by the project in year y (MWh) EF_{GRID} = Combined margin emission factor (Baseline Emission factor) for the year y (tCO_2/MWh) **Ex-ante parameters:** The baseline emission factors are taken ex-ante in line with the registered VCS PD as well as cross checked with section validation report and found correct. The Ex-ante value of O M and BM are directly taken from CO_2 baseline database, Version 4.0 published by Central

	Electricity Authority, Govt of India. Combined margin CO_2 emission factor ($EF_{CM,y}$) is equal to 0.906 tCO_2/MWh. The calculation approach was in line with the VCS PD. Values are as follows: $EF_{grid,OM,y}$ = 1.009 tCO_2/MWh $EF_{grid,BM,y}$ = 0.598 tCO_2/MWh $EF_{grid,CM,y}$ = 0.906 tCO_2/MWh **Ex-post parameter:** As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored: EG_y - Net Electricity Exported by the all the WTGs to grid in the year y (KWh/year) The value of the net electricity supplied by the project activity is sourced from the JMRs. The net electricity exported by all the WTGs to grid is calculated as difference of "Export" and "Import" measured by main and check meter of accuracy 0.2s installed at Feeder 5 and feeder 6. The electricity from the WTGs is transmitted to the 220 kV/33 kV Ghatnandre substation maintained by the Suzlon. Monthly Joint Metering of the main meter is carried out by the official from MSEDCL and the PP representative. Calibration of meters are done by MSDEDCL on a regular basis as per their internal calibration schedule as specified in the power purchase agreement i.e. annually which is in compliance with the calibration frequency maintained in VCS PD. The details of energy meters including calibration dates are provided in Section 4.5 of this report. The total net electricity supplied by the project activity during the current monitoring period is 64,181.08 MWh. The verification team has checked the entire monthly "monthly energy statements from MSEDCL" reports for the net electricity generated & supplied to the grid and cross checked the invoices raised by the PP to the state Utilities and conservatives' values of net electricity exported to grid have been used for calculating emission reductions. The calculation of net electricity supplied to grid is under purview of state electricity board and PP does not have control on it. All relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. BEy - Baseline emissions, tCO_2e BEy = 64,181.08 MWh x 0.906 tCO_2e/MWh = 58,146 tCO_2e (rundown values)

	As per applied methodology AMS-I.D, version 14 and the VCS PD, project emission is considered zero as the project activity involved wind power generation. Leakage: As per applied methodology AMS-I.D, version 14 and VCS PD Leakage emissions are not considered for the project activity. Hence, $ERy = BE_y - PE_y - L_y = 58,146 - 0 - 0 = 58,146\ tCO_2e$ (roundown values) Assessment team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the registered VCS PD. Verification team also confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD.

4.5 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 07 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 metering arrangement is tri-vector bi-directional energy meters of Elster Make; accuracy class 0.2s (main and check) installed at 33 kV metering point at Ghantnaandre sub-station. These meters record several parameters including electricity exported & imported. These electricity meters are being used by state electricity board for monthly generation reports. Assessment team observed that during the current monitoring period meters are calibrated as per calibration frequency specified in the power purchase agreement i.e. annually which is in compliance with the calibration frequency maintained in VCS PD. The calibration of meters are done by Meter Testing Division of Maharashtra State Electricity Distribution Company Ltd. (MSEDCL). The calibration details of meters are provided in Appendix 5 of this report. Further, Assessment team confirms that all the meters are of same accuracy class i.e. 0.2s as per the requirement of the registered PD. On-site photographs and interview during remote audit with O&M personnel also confirms the same. The electricity generations are monitored continuously & cumulative readings are taken at the end of the month by joint meter reading procedure. These are sealed by State Utilities to avoid malfunctioning with meter readings. The break down log is checked and there is no major breakdown during the monitoring period. No unforced error observed.

	No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The monitoring meters were found delayed calibration during the current monitoring. Hence, PP has applied maximum permissible error factor of 0.2% in the electricity export and import values for the delayed calibration. Thus, assessment team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals.

4.6 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 VERIFICATION CONCLUSION

Applus+ Certification has been engaged by Aryan Coal Benefications Pvt. Ltd. to perform the 3rd periodical verification of the "Aryan Coal 15 MW Wind Power Project in Maharashtra, India".

The management of Mineral Enterprises Limited 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 PD and the applied methodology AMS-I.D - Version 14.

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. Further, 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 document verifications. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions. 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.
- A Reasonable Level of assurance was achieved as planned, during verification process.
- Verification period: 01-Janaury-2013 to 27-March-2016 (inclusive of both days)

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

Year	Baseline emissions or removals (tCO_2e)[5]	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01-Janaury-2013 to 31-December-2013	22,198	0	0	22,198
01-January-2014 to 31-December-2014	15,928	0	0	15,928
01-January-2015 to 31-December-2015	18,017	0	0	18,017
01-January-2016 to 27-march-2016	2,003	0	0	2,003
Total	**58,146**	**0**	**0**	**58,146**

[5]Rounddown values

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning certificates of the WTGs	No.SE/SC/T/ No. 2896 dated:03-October-2005 No.SE/SC/T/ No. 3029 dated:03-October-2005 No.SE/SC/T/ No. 3030 dated:03-October-2005	PP
2.	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	PP
3.	NA	The operational lifetime of the project activity from the manufacturer = (Technical specifications)	Manufacturer technical specifications	PP
4.	NA	Registered PD *https://registry.verra.org/app/projectDetail/VCS/298*	Version:01 04-August-2008	PP
5.	NA	Calibration Certificates of energy meters	-	PP
6.	NA	MR version 01 MR version 02 (final revised-VERRA review)	17-Decemeber-2020 26-July-2021	PP
7.	NA	Emission reduction sheet version 01 Emission reduction sheet version 02	17-Decemeber-2020 20-April-2021	PP
8.	NA	O & M Agreement	-	PP
9.	NA	Power Purchase Agreement (PPA)	-	PP
10.	NA	Tools/ guidelines used in the project activity • Glossary of CDM terms version 07 • VCS standard Version 4.0 • VCS Program Guide 4.0 • VCS verification report template version 4.0	UNFCCC CDM/VCS web site	UNFCCC
11.	NA	Monthly statement- JMR & invoices for the complete monitoring period	-	PP
12.	NA	Declaration regarding no participation in other GHG program for the concerned monitoring period	05-February-2021	PP
13.	NA	Breakdown details for the monitoring period	-	PP
14.	NA	Employment records for plant persons	-	PP
15.	NA	Grievance Register maintained at site	-	PP

No.	Author	Title	References to the document	Provider
16.		CDM validation and verification standard for project activities, Version 02.0	-	UNFCCC
17.		Verification Report of previous VCS verification *https://registry.verra.org/app/projectDetail/VCS/298*	Version 01 dated 22-August-2013.	-

APPENDIX 2: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

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

FAR ID	XX	Section no.	E.2	Date : DD/MM/YYYY
Description of FAR				
There is no FAR from the validation/previous verification of the project activity				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this verification

CL ID	XX	Section no.	NA	Date : DD-Month-YYYY
Description of CL				
NA				
Project participant response				Date : DD-Month-YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD-Month-YYYY
NA				

Table 3. CAR from this verification

Project Implementation Status

CAR ID	01	Section no.	4.1	Date: 28-January-2021
Description of CAR				
During the document review it was observed that 1. History of the vintage-wise VCU's issued is missing in the MR. corrective action sought. 2. Project already implemented however, actual contribution to Sustainable Development missing in section 1.11 of the MR. 3. The feeder wise location of the WTGs is missing in the MR. Corrective action is sought.				
Project participant response				Date: 20-April-2021

1. History of vintage-wise VCU's has been included in the section 1.9 of the revised MR. 2. Section 1.11 of the MR has been revised as per comment. 3. Feeder locations have been added in section 1.7 of the MR.
Documentation provided by project participant
Revised MR dated: 20-April-2021
DOE assessment | **Date: 26-April-2021**
1. History of the vintage-wise VCS's is now included in Section 1.9 of revised MR. Hence OK. 2. PP has included the actual contribution to sustainable Development in Section 1.11 of revised monitoring report. Hence OK 3. PP has added the feeder wise location if WTGs in Section 1.7 of revised MR. **CAR closed.**

CAR ID	02	**Section no.**	4.1	**Date:** 28-Janaury-2021
Description of CAR				
During review of Monitoring report DOE found that the following information's are missing in monitoring report; 1. Technical specification of WTGs; 2. Breakdown details: Further, PP requested to submit supporting evidence for the breakdown details and manufactures technical specifications to assessment team. Corrective action is sought.				
Project participant response | **Date: 20-April-2021**				
1. Technical specifications of WTGs has been added in Appendix II of the MR. 2. Break down detail has been added in Appendix IV of the MR.				
Documentation provided by project participant				
1. WTG Technical Specification 2. Break down detail				
DOE assessment | **Date: 26-April-2021**				
1. PP has now added technical specification of WTGs in revised monitoring report. Verification team has checked the same and confirms that technical specifications of WTGs are same as mentioned in VCS PD. 2. Break down details is now included in Appendix IV of revised MR. No unforeseen incident/event evolved which can impact the operation of the project activity which was verified from breakdown records. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team. CAR closed.				

CL ID	03	**Section no.**	4.1	**Date: 28-Janaury-2021**
Description of CAR				

In Section 1.6 of MR, PP has mentioned that *the* ***Crediting Period start date can be considered as either the start date of project activity or 28-March-2006, whichever is later. Start date of the project activity is 29-Sepetember-2005 and VCUs can be claimed for 10 years inline with the VCS guidelines version 04***. **Clarification requested.**

Project participant response	**Date: 20-April-2021**
The start date of the project activity is 29-September-2005, which is the date of commissioning of the first WTG of the project activity. The length of the fixed crediting period can be claimed up to 10 years as per VCS guideline (version 04) Since start date of crediting period is 28-March-2006 as per registered PD and then end date of crediting period will be 27-March-2016 but the same date is mentioned 28-March-/2016 in registered PD. A deviation has been requested in section 3 of the Monitoring report as per VCS guideline to correct the end date from 28-March-2016 to 27-March-2016.	
Documentation provided by project participant	
Revised MR dated 20-April-2021	
DOE assessment	**Date: 26-April-2021**
PP clarified that the start date of the project activity is 29-September-2005, The length of crediting period can be claimed 10 year (fixed) as per VCS guidelines version 4.0. The start date of crediting period as mentioned in VCS PD is 28-March-2006. The same is verified with the Validation Report of the project activity. PP has sought deviation for correction in length of crediting period from 28-March-2016 to 27-March-2016. As per VCS Standard, the length of fixed crediting period is 10 year. The start date of the crediting period of the project activity as per registered VCS PD is 28-March-2006 and the same is verified with the validation report. Thus, the end date of crediting period will be 27-March-2016. Hence the correction sough for the end date of crediting period is acceptable to VVB. CAR closed.	

CAR ID	04	**Section no.**	4.1	**Date: 28-Janaury-2021**
Description of CAR				
During the review of documents submitted by PP, assessment team found that the following documents are missing; 1. Power Purchase agreement for the project activity 2. O & M Agreement 3. Commissioning Certificate 4. Declaration regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India. PP is requested to submit above documents for verification				

Project participant response	Date: 20-April-2021
Documents have been submitted to DOE.	
Documentation provided by project participant	
1. PPA 2. O&M Agreement 3. Commissioning Certificates 4. VCS Declaration	
DOE assessment	**Date: 26-April-2021**
PP has now submitted the following supporting evidences to Verification Team: 1. Power purchase agreement for buying the electricity from the project activity signed with Maharashtra State Electricity Distribution Company Limited on 28-September-2005 and the amended on 22-November-2017. 2. O & M contract signed with WTG supplier Suzlon Global Services Limited. 3. Commissioning Certificates of all WTGs issued by the Maharashtra State Electricity Distribution Company Limited. Verification team has checked the commissioning dates of WTGs with the certificates and found correct. 4. VCS Undertaking dated 05-February-2021 regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India CAR closed.	

CAR ID	05	Section no.	4.1	Date: 28-Janaury-2021
Description of CAR				
PP is requested to provide supporting documents of local stakeholders including mechanism for ongoing communication with Local Stakeholder as per requirement of Para 3.16.3 and 3.16.4 of the VCS standard V.4.0. section 2.2 of the MR is not completed inline with the guidelines to complete MR. Corrective action is sought.				
Project participant response				**Date: 20-April-2021**
A grievance register has been placed at the site for public comments. Section 2.2 of the MR has been revised as per comment.				
Documentation provided by project participant				
1. Grievance Register				
DOE assessment				**Date: 26-April-2021**
PP has kept grievance registered at project site for ongoing communication with Local Stakeholder and also provided the copy of grievance registered to assessment and the same is in line with the requirement para 3.16.3 and 3.16.4 of the VCS standard V.4.0. **CAR closed.**				

Accuracy of GHG Emission Reduction and Removal Calculations

CAR ID	06	Section no.	4.4	Date: 28-Janaury-2021
Description of CAR				
During the document review assessment team has observed following: 1. Copies JMRs for verification of electricity exported to grid and Invoices for cross check are not provided to assessment team. PP is requested to provide the monthly JMRs and Invoices for verification. 2. Ex-ante values of OM, BM and CM is not consistent in MR with VCS PD. PP is requested to clarify the same. Corrective action is sought.				
Project participant response				**Date: 20-April-2021**
1. JMRs have been submitted to DOE. 2. Ex-ante values of OM, BM and CM have been revised in section 4.1 of MR.				
Documentation provided by project participant				
1. JMR 2. Revised MR dated 20-April-2021				
DOE assessment				**Date: 26-April-2021**
1. PP has submitted the copies of monthly JMRs and invoices. Verification team checked the export/import data's in ER sheet with JMR and found correct. PP has sourced all data from monthly JMRs and make aligned the same in ER sheet to arrive the net electricity exported to grid. Data's are also cross checked with the invoices. 2. Ex-ante values of OM, BM and CM is now corrected by PP in Section 4.1 of revised MR. **CAR closed.**				

Quality of Evidence to Determine GHG Emission Reductions and Removals

CAR ID	07	Section no.	4.5	Date: 28-Janaury-2021
Description of CAR				
The details information of monitoring equipment's such as serial number of meters, make, calibration date dates, due date of calibration are not provided in MR. Further, Calibration certificates are also not submitted to the assessment team. Corrective action is sought.				
Project participant response				**Date: 20-April-2021**
1. Calibration detail has been added in Appendix II of the MR.				
Documentation provided by project participant				
1. Revised MR dated 20-April-2021 2. Calibration Certificate				
DOE assessment				**Date: 26-April-2021**

PP has now added the calibration details of monitoring equipment in Appendix II of revised MR and also submitted the calibration certificates of energy meters. Verification team has checked the calibration certificate of energy meters and found that meters are calibrated as per the calibration frequency in VCS PD i.e. annually. **CAR Closed**

Table 4. FAR from this verification

FAR ID	XX	**Section No.**		**Date :** DD-Month-YYYY
Description of FAR				
There is no FAR from this verification				
Project participant response				**Date :** DD-Month-YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD-Month-YYYY
NA				

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	TAKARKHEDE	ATUL	TQC-Outsourced entity	Yes	No	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) / Technical Expert (TE)	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustín	Applus+ Certification

Short CVs of the Team:

1. Dr. Atul Takarkhede is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 years of experience in field of Environmental Auditing, consulting and accreditation. He is an expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes.
2. Mr. Simon Shen (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project

assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD for 3.5 years before he joined Applus+. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.

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_2e	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
PP	Project Participant

APPENDIX 5: CALIBRATION DETAILS OF THE METERS

Meter Serial Number	Feeder No	Make	Accuracy Class	Date of Calibration	Due Date of Calibration
14796421 Main Meter) 14796422 (Check meter)	5	Elster	0.2 s	18-December-2012 27-August-2013 20-August-2014 09-August-2015	17-December-2013 26-August-2014 19-August-2015 08-August-2016
14796410 (Main Meter) 14796411 (Check Meter)	6				