VERIFICATION REPORT OF ARYAN COAL 15 MW WIND POWER PROJECT IN MAHARASHTRA, INDIA

Bureau Veritas Certification Holding SAS

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Summary:

Bureau Veritas Certification has made the verification of the "Aryan Coal 15 MW Wind Power Project in Maharashtra, India" project of ACB (India) Private Limited located in Village Ghatnandra in Sangli District of Maharashtra, India on the basis of Verified Carbon Standard Version 3, 4 October 2012, v3.3 as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as a periodic independent review and ex-post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases:

i) desk review of the project design and the baseline and monitoring plan;

ii) follow-up interviews with project stakeholders;

iii) Resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The project activity is to generate power (electrical energy) from renewable energy (wind energy), which displaces power generation from fossil fuel that would have been the scenario in absence of the project activity, thus achieve GHG emission reduction due to utilization of renewable energy.

The verification is based on the documents like Monitoring Report, Emission Reduction calculations and other supporting documents provided to the verification team. This verification is carried out in accordance with VCS Standard V.3, 4 October 2012 v3.3 and VCS Program Guide V.3, 4 October 2012 v3.4.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in registered VCS PD. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project contributes towards GHG emission reductions. The GHG emission reduction is calculated without material mis-statements.

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Abbreviations:

VER	Voluntary Emission Reduction
VCS	Verified Carbon Standard
VCU	Voluntary Carbon Unit
BMS	Bureau Veritas Certification's Management System
CAR	Corrective Action Request
CL	Clarification Request
FAR	Forward Action Request
CO_2	Carbon Dioxide
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gases
I	Interview
IETA	International Emissions Trading Association
MV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non Governmental Organization
PD	Project Description
UNFCCC	United Nations Framework Convention for Climate Change
CDM	Clean Development Mechanism
MU	Million Units
KW	Kilowatt
KWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
EF	Emission factor
MSEDCL	Maharashtra State Electricity Distribution Company Limited
PPA	Power Purchase agreement
JMR	Joint Meter Reading
CEA	Central Electricity Authority
PP	Project Participant
WTG	Wind Turbine Generator

1 INTRODUCTION

1.1 Objective

Verification is the periodic independent review and ex-post determination by the verifier of the monitored reductions in GHG emissions during defined verification period. The objective of the verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project has generated verifiable emission reductions. This is the second verification of the project activity post validation of the project under VCS. The project got registered on 29/01/2010 and the crediting period is from 28/03/2006 to 27/03/2016. The first verification was from 28/03/2006 to 31/07/2009 (inclusive of both the days). The current verification period is from 01/08/2009 to 31/12/2012 (inclusive of both the days). These emission reductions are verified as per the guidance provided by VCS standards version 3 dated 4 October 2012 v3.3.

The verification shall consider both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring report and emission reduction calculations submitted to the verifier by the project participant and qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reports, review and internal audit of calculations/data transfers.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring reports, registered VCS PD, the project's baseline study, including the monitored data and other relevant documents made available to verifier and information collected through performing interviews during on-site assessment of the project activity. The verification follows VCS Standard version 3 dated 4 October 2012 v3.3. The verification is not meant to provide any consulting toward the client. However, stated request for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

The verification team was provided with a monitoring report, covering the period 01/08/2009 to 31/12/2012 (inclusive of both the days). Based on this documentation a document review and an on-site assessment of implementation and emission reduction were conducted. The Monitoring Report, version 06, dated 22/08/2013 covering the period from 01/08/2009 to 31/12/2012 (inclusive of both the days) serves as the basis for the assessment presented herewith.

The verification report is based on the documents made available to verification team and information provided during interviews. Based on the process and procedures conducted, it can be concluded that the GHG assertion.

1. Is materially correct and is not a fair representation of GHG data and information, and
2. Has been prepared in accordance with VCS Standard Version 3 dated 4 October 2012 v3.3.

The data used for the calculation of emission reductions were taken from CEA (Central Electricity Authority), monthly JMR issued by MSEDCL for net electricity exported to the grid by project activity. MSEDCL will perform the calibration of energy meters installed at project sites. As per the registered VCS PD (project ref. no. 298), the calibration has to be conducted once in a year. Accordingly the meters were calibrated on 25/11/2008, 05/11/2009, 04/03/2010, 13/03/2011 and 24/07/2012 for the set of Meters (Main and Check) installed in both the feeders (feeder 5 and 6) installed at the Suzlon Sub-station at the project site. From, this date of calibration, it is evident that there is a delay in calibration in the year 2011 and 2012. However, the calibration certificate for the same indicates that the meters were working within the permissible limit of error. The project participant has applied error equivalent to the accuracy class of the energy meter (0.2%) for the months of 2011 and 2012 where there is a delay in calibration which is in line with VCS Validation and Verification Manual Version 3 dated 4 October 2012 and also in line with the requirements given under section 9.4.4 of the CDM Validation and Verification Standard, Version 04.

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 emission reductions.

Based on the process and procedure conducted, it can be concluded that the GHG assertion is materially correct and is a fair representation of GHG data and information which has been prepared in accordance with the VCS Standard 3.3 for the current verification period.

The verification team considers the assurance level as 'limited' since some of the data used (E.g. Emission factor) are from the publicly available databases such as the IPCC database, CEA database for emission factor of the grid, for which detailed testing of GHG assertion is beyond the domain of project proponent ,stake holder and the verification team. In accordance with the VCS Standard Version 3.3, the materiality threshold applied was one percent. The accrued emission reductions for the current monitoring period from the project activity are 69,520 tCO_2 .

1.4 Summary Description of the Project

The project activity involves the installation of 12 numbers Wind Turbine Generator's (WTG) of capacity 1.25 MW each in Village Ghatnandra in Sangli District of Maharashtra, India. The total capacity of the project activity is 15 MW and the entire power generated by the project activity will be exported to the NEWNE grid with a firm power purchase agreement with MSEDCL. All the 12 WTG of the project activity are owned by M/s ACB (India) Private Limited. The project is registered under VCS on 29/01/2010 (id no 298). The project activity generates electricity using wind energy, which does not result in any greenhouse gas (GHG) emissions. Thus, this project activity will lead to a reduction in GHG emissions that would otherwise have occurred when using electricity generated from conventional fossil fuel based sources in the NEWNE regional grid.

The electricity generated by the project activity is evacuated to a Suzlon substation. The continuous monitoring and monthly recording of the electricity supplied to the grid and supplied from the grid to the project activity is carried out on two feeders of the transmission lines by which the power is evacuated by a set of main and check electronic tri-vector meters of 0.2s accuracy class installed on each feeder. The recording of the net electricity supplied to the grid is

carried out jointly on monthly basis by the representatives of MSEDCL and project participant and a monthly JMR (Joint Meter Reading) Report duly signed is issued by the MSEDCL.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

The project is registered with a full validation as per VCS 2007.1 on 29/01/2010 (id no 298) and hence no supplementary validation is conducted. This is only a verification activity. Hence not applicable.

2.2 Validation Findings

2.2.1 Gap Validation

Not applicable

2.2.2 Methodology Deviations

Not applicable

2.2.3 Project Description Deviations

Not applicable

2.2.4 New Project Activity Instances

Not applicable

2.3 Validation Conclusion

Not applicable

3 VERIFICATION PROCESS

3.1 Method and Criteria

The overall verification, beginning from the Contract Review to Verification report & opinion, was conducted using Bureau Veritas Certification internal procedures. The project is already validated and registered as a VCS project with the registry (Project ID 298). The verification criteria followed by the project participant is based on the VCS standards Version 3. The verification process consists of following activities:

i) *Desk review of the registered project document including the baseline and the monitoring plan;*

This process consists of the review of the current and previously approved documents related to the project activity including validation report, registered VCS Project Document (VCS PD), and previously approved monitoring report and the verification report (approved after 1st verification). The current documents include the Monitoring report for the current verification period, emission reduction spreadsheet and other supporting documents (JMR, calibration certificates, invoices etc.) pertaining to the current verification period. Refer to Annexure II for the list of documents.

ii) *Physical site inspection and follow-up interviews with project stakeholders;*

The second step involves the physical site visit to ensure that project activity is being implemented and operated as per the project description contained in the registered VCS PD. The activity also includes the follow-up interviews with the various plant personals involved in the operation of the project activity.

iii) Resolution of outstanding issues and the issuance of the final verification report including verification opinion

The third step involves the resolution of the CAR/CL raised. Verification process also includes raising the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification before conclusion on the GHG emission reduction calculation.

Findings established during the initial verification could either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified. Corrective Action Requests (CAR) is issued, where:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions, which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation and/or 1st verification to be verified during subsequent verification have not been resolved by the project participants;
- The verification team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable VCS requirements is met.

To guarantee the transparency of the verification process, the concerns raised are documented in moe detail in the verification protocol in Appendix A.

The Clarification, Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 04 Corrective Action Requests and 03 Clarification Request.

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

3.2 Document Review

The verification team has assessed the accuracy of the project description through a combination of steps consisting of site visit inspection, review of contract related to the project activity, Scrutiny of technical specification and interview of the project proponent and their representatives. Following supporting documents were reviewed for the current verification period:

- Registered VCS PD, Validation Report, previously approved Monitoring Report and the previous Verification Report of the project activity.
- Monitoring report and emission reduction spreadsheet for the current verification period.

- Monthly JMR reports, monthly Invoices and calibration certificates of the energy meters pertaining to the current verification period.
- Daily Generation record.
- "Certificate of Incorporation consequent upon change of name" of the project participant issued by Government of India-Ministry of Corporate Affairs.

3.3 Interviews

From 21/03/2013 to 22/03/2013, Bureau Veritas certification performed site visit to project site in Village Ghatnandra in Sangli District of Maharashtra, India. Bureau Veritas Certification performed interviews with site personnel and the representative of the project participant to confirm selected information and to resolve issues identified in the document review. Representatives of ACB (India) Private Limited, First Green Consulting Private Limited were interviewed (see References). The main topics of the interviews are summarized in Table below:

Interviewed organization	Interview topics
ACB (India) Private Limited (Project Participant)	• Project implementation and changes • Monitoring • Data recording and archiving • Calibration of equipment • Performance of plants • Personnel competence • Emergency Situations • Data uncertainty and residual risks • QA/ QC Procedures • Internal review / verification mechanism
First Green Consulting Private Limited (Project Consultant)	• Monitoring Plan • Monitored data • Data uncertainty and residual risks • Emission reduction calculation procedures

3.4 Site Inspections

This is second periodic verification of the project activity. The physical site visit for the verification period carried out by one competent verifier (Part of Verification Team) from 21/03/2013 to 22/03/2013 and the period when site visit conduced is post the current verification period.

The verification team reviewed all the records of the sold electricity and the JMR reports (issued by the state electricity utility which is a government entity) for the current verification period (second periodic verification) that there is no change in the project design with respect to registered VCS PD.

3.5 Resolution of Any Material Discrepancy

The project activity is already registered as a VCS project with the registry under the project title 'Aryan Coal 15 MW Wind Power Project in Maharashtra, India' and running successfully in accordance with the project design reported in the registered PD. The verification team confirms that there are no remaining issues or any material discrepancy in the project activity as the project is already registered under VCS (Project ID 298). However, certain CARs and CLs were raised by

the verification team during the current verification period and were subsequently closed by the verification team on the basis of correct and appropriate response by the Project participant. The closure of CARs and CLs are discussed under Annex-1 of the verification report.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity involves the installation of 12 numbers Wind Turbine Generator's (WTG) of capacity 1.25 MW each in Village Ghatnandra in Sangli District of Maharashtra, India. The total capacity of the project activity is 15 MW and the entire power generated by the project activity will be exported to the NEWNE grid with a firm power purchase agreement with MSEDCL. The WTGs were commissioned from 29/09/2005 to 30/09/2005. The electricity generated by the project activity is evacuated to a Suzlon substation. The continuous monitoring and monthly recording of the electricity supplied to the grid and supplied form the grid to the project activity is carried out on two feeders of the transmission lines by which the power is evacuated by a set of main and check electronic tri-vector meters of 0.2s accuracy class installed on each feeder. The recording of the net electricity supplied to the grid is carried out jointly on monthly basis by the representatives of MSEDCL and project participant and a monthly JMR (Joint Meter Reading) Report duly signed is issued by the MSEDCL representatives.

The monitoring methodology used for the project activity is AMS I.D, Version 14 (which is an approved monitoring methodology by the CDM Executive Board). The title of the monitoring methodology is "Grid connected renewable electricity generation". The key parameter to be monitored for calculation of emission reductions is the "net electricity supplied to the grid by the project activity". The same is being monitored by the project participant through installation of the main and check meters on two feeders of the transmission lines by which the power is evacuated of the project activity.

The records of the sold electricity from the project are verified by a government agency and the calibration of the energy meters is also carried out by a government agency (MSEDCL).

A clarification request CL 1 was raised as it was observed that the name of the company has been changed from Aryan Coal Beneficiation Private Limited to ACB (India) Private Limited. However, evidence in support of the same was not provided. In response to the CL, the PP provided a "Fresh certificate of Incorporation consequent upon change of name" issued by Government of India-Ministry of Corporate Affairs. As per this certificate the name of company has been changed to ACB (India) Private Limited on 18/09/2009. Hence the title or the right of the project activity remains with the same company as earlier designated in VCS PD & VCS Validation report i.e. Aryan Coal Beneficiation Private Limited and subsequently CL 1 was closed by the verification team.

The verification team has conducted the site visit from 21/03/2013 to 22/03/2013 and referred documents Commissioning certificates, Power Purchase Agreements, Joint Meter Statements, Invoice raised by the project participant for the project activity WTGs and interview with the representatives of the PP for the Project activity to confirm that the project design, implementation and operation is in compliance with the registered PD and applied monitoring methodology AMS I.D version 14. The verification team also confirms that monitoring of the parameters has been carried out in accordance with the monitoring plan of the registered PD and the equipments used

for the measurement have been calibrated appropriately in accordance with the periodic frequency specified in the monitoring plan. In addition, the data cross-checking procedures, calibration procedures, frequency of calibration and data uncertainty procedures remains same as it was provided in the registered PD. Hence, the verification team confirms that the project monitoring plan is in compliance with the registered PD and applied monitoring methodology AMS I.D version 14.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Project participant provided the spreadsheet used for calculating the emission reductions including the algorithms used in the calculations. The calculations of above parameters were checked in the spreadsheets and found to be correct. The spreadsheet of emission reduction calculation contains information on i.e. net electricity exported to the grid. This information is taken from Joint Meter Reading (JMR) issued by MSEDCL. To calculate emission reduction as per algorithm given in methodology, baseline emission is calculated by multiplying combined margin emission factor with total value of net electricity exported to grid. The project emissions and Leakage is considered zero which is in line with registered PD.

The verification team has reviewed the calibration certificate from the year 2008 to 2012 for all the four energy meters and confirm that there is no meter change that has happened during the current verification period and that all the meters are working within the permissible limit of error. However, the project participant has also applied 0.2% of the maximum permissible errors (which is the accuracy class of the energy meters) on the Net Electricity exported to the grid for the month of March 2011 and from March 2012 to July 2012 for the Feeder 5 and from March 2011 to June 2011 and from June 2012 to July 2012 for the Feeder 6 because of delayed calibration during this period. This is a conservative and appropriate approach in line with VCS Validation and Verification Manual Version 3 dated 4 October 2012 and also in line with the requirements given under section 9.4.4 of the CDM Validation and Verification Standard, Version 04.

However, Main meter and check meter for Feeder 5 & 6 have been replaced on 18/12/2012. This monitoring period is upto 31 December 2012. However, the change in meters will not affect this monitoring period emission reduction calculation as all the four numbers old meters was working within the permissible limits of error and the new meters are also of same accuracy class as the main meters (0.2s). Details of new meters are as follows:

Feeder No.	Serial no. of Main Meter	Serial no. of Check Meter
Feeder 5	14796421	14796422
Feeder 6	14796410	14796411

The verification team based on the site visit observations and by cross-checking the meter change details of all the Energy meters confirms the correctness of the serial number of new installed meters and date of meter change.

All the data in the revised emission reduction spreadsheet was found to be correct and accurate. There is no possible transposition errors between data sets since the monitoring of the net electricity generated is through calibrated electronic meters with high accuracy and also the value of parameter net electricity exported to the grid is taken from Joint Meter Reading (JMR) issued by MSEDCL which is government entity and cross-checked with the monthly invoice raised by the PP to the MSEDCL. Also all the recorded data is verified by the verification team. The verification team found that the monitoring plan provided in the monitoring report is same as that described in the VCS PD and it is in line with actual monitoring taking place on the site of the project activity.

Emission Reductions:

The emission reduction calculations have been carried out from the following algorithm as per applied methodology AMS I.D version 14:

ERy = BEy - PEy – LEy

Baseline emissions (BEy)

The verification team confirms that project participant has computed the baseline emissions in accordance with the guidance provided in the methodology. The net electricity supplied by the project activity to the grid has been multiplied with the NEWNE grid electricity emission factor.

The verification team confirms through the review of the monitoring arrangements and the JMR reports provided by the government entity MSEDCL that for the entire current periodic verification, the electricity exported to the grid and imported from the grid was monitored through high accuracy class bi-directional tri-vector energy meters (0.2s accuracy class) capable of continuous monitoring. The recording of the data was carried out on monthly basis. This is in accordance with the applied methodology and the monitoring plan of the registered VCS PD. The net electricity supplied to the grid was also cross-checked by the validation team through the invoices raised by the project participant for the sold electricity.

The grid emission factor, calculated on the basis of the combined margin is 0.906 tCO_2/MWh and is fixed ex-ante at the time of the validation of the project activity.

Hence, the validation team confirms that the baseline emissions computed for the current verification are appropriate and conservative and the commutation approach provided under emission reduction spreadsheet is correct. The total baseline emissions for the current verification period from 01/08/2009 to 31/12/2012 (Including both days) are 69,520 tCO2 (rounded down value).

Project Emissions (PEy):

The project activity consists of electricity generation and supply to the grid by using renewable energy (wind energy). There is no project emission associated with renewable wind energy hence project emissions are taken as zero which is also in line with the applied methodology.

Leakages (LEy):

The verification team found that there are no leakages attributable and accountable to Project. This is in accordance with VCS registered PD and applied methodology.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

MSEDCL issues JMR based on Meter readings taken jointly by representative of MSEDCL and Representative of Project participant at the JMR site. On the basis of this data issued by MSEDCL, project participant raises invoice.

The main meters and check meters are calibrated at required intervals i.e. annual by MSEDCL, thus ensuring error free measurements. The calibration certificates for entire vintage were verified along with monthly meter readings. The data pertaining to the above parameters are maintained in identified records for the entire monitoring period. All the data is in compliance with the figures stated in the monitoring report.

4.4 Management and Operational System

The Verification team interacted with the team of the O&M service provider; M/s. Suzlon Energy Limited, who is the windmill supplier itself during site visit of the project. The agency is experienced in the monitoring system and is managing O&M of numerous other wind farm CDM projects across the host country (India). The Verification team therefore is of the opinion that the project participant through its competent O&M agency has implemented the monitoring plan in line with the registered PD and monitoring plan in the context of the project activity.

5 VERIFICATION CONCLUSION

The verification scope is an independent and objective review of the VCS Project description, the project's baseline study and monitoring plan and other relevant documents. The review is to verify the implementation of monitoring plan as defined in validated VCS PD. The period for verification is from 01/08/2009 to 31/12/2012 (inclusive of both the days).

The verification of the monitored data indicates the emission reductions and the amount for emission reductions for the monitoring period are provided below.

Monitoring Period		Total Emission Reductions Achieved (tCO_2e)
From	To	
01/08/2009	31/12/2009	7,602
01/01/2010	31/12/2010	20,073
01/01/2011	31/12/2011	20,413
01/01/2012	31/12/2012	21,432

The calculations of emission reductions are found to be correct. The baseline for the NEWNE regional grid has been taken for arriving at baseline emissions. The grid emission factor of 0.906 tCO_2e/MWh for NEWNE grid was found to be correct.

Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a period sufficient to meet the needs of the

client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal and professional requirements of record retention have been established.

The verification team confirms that the project is implemented as planned and described in the Registered PD. The monitoring mechanism is effective and reliable. The reported data are accurate and correct based on all the records provided to the verification team during the verification as provided in annexure-II. The installed equipments being essential for generating the emission reductions run reliably and the measuring equipments/instruments are calibrated appropriately.

Reporting period: 01/08/2009 to 31/12/2012

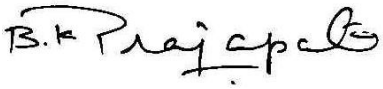
Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO_2e
Baseline Emissions	69,520
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	69,520

Pratik Bhattacharya

(Team Leader)

22/08/2013



Bhavesh Prajapati

(Internal Technical Review)

22/08/2013

Annexure I VERIFICATION Protocol

Table 1: Verification requirements based on the Voluntary Carbon Standard version 03

	CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1 Project implementation in accordance with the registered project document				
a	Are all physical features of the proposed VCS project proposed in the registered PD in place?	All the physical features of the registered VCS project (Project ID 298) are in place at the site and in operation. Project activity involves the installation and operation of 12 WTGs of 1.25MW capacity each with aggregate capacity of 15MW in village Ghatnandra in Sangli district of Maharashtra state.	OK	OK
b	Have the project participants operated the proposed VCS project as per the registered PD?	Yes, during site visit it was observed that project participant have operated the proposed VCS project as per the registered PD and monitoring plan contains therein.	OK	OK
c	Was an on-site visit conducted?	Onsite visit was conducted on 21st and 22nd of March 2013.	OK	OK
d	If not, justify the rationale of the decision.	Not applicable	-	OK
e	Does the implementation or operation of VCS project conform with the description contained in the registered PD?	Yes. The project implementation and operation conform to the description contained in the registered VCS-PD. Section 1.3 of Monitoring report, states the revised name of PP i.e. ACB (India) Private Limited. Please provide supporting evidence towards change of name of project participant.	**CL-1**	OK
f	If not, which are the potential impacts due to these changes?	Not Applicable	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
2 Compliance of the monitoring plan with the monitoring methodology			
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed VCS project?	The validated monitoring plan is in accordance with the approved applied methodology AMS ID version 14.	OK	OK
b Are there any monitoring aspects of the project that are not specified in the methodology (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	There are no further monitoring aspects identified which are required to be specified in the monitoring plan of the project activity.	OK	OK
3 Compliance of monitoring with the monitoring plan			
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	The monitoring plan and the applied methodology has been properly implemented and followed by the project participants.	OK	OK
b Have all parameters stated in the monitoring plan, the applied methodology been sufficiently monitored and updated as applicable, including:			
i Project emission parameters?	Project emissions are not applicable for the project activity	OK	OK
ii Baseline emission parameters?	Only one parameter i.e. EGy is mentioned in registered VCS-PD which is monitored by the project participant. However, the source of data mentioned for EGy is incorrect and not matching with the monitoring plan mentioned in registered VCS-PD.	**CAR-1**	OK
iii Leakage parameters?	Leakage emissions are not applicable for the project activity	OK	OK
iv Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?	It was identified during site visit that the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan of the registered VCS-PD.	OK	OK
c Are equipment controlled and calibrated in accordance with the monitoring plan?	1) Monitoring report does not provide the Calibration details of the main and check meters used for monitoring the electricity export and import by the WTGs in project activity. 2) Calibration certificate for main and check meters installed on	**CAR-2**	OK

	CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
		feeder-6 at substation is not provided to verification team for review.		
d	Are monitoring results consistently reccorded as per approved frequency?	Project activity involves the monitoring of net electricity export to the grid by the WTGs in project activity. The parameter EGy i.e. net electricity export to the grid is monitored contineously by main and check meter and recorded monthly in form of JMRs. The actual net electricity export to the grid is calculated and reflected in Invoices raised by PP to Maharashtra State Electricity Distribution Company Limited.	OK	OK
e	Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	Registered monitoring plan of the VCS-PD specifies the calibration frequency of main and check meters to be maintained annually. However, same is not followed annually in current monitoring plan. Please demonstrate the accuracy of monitored data and its impact on emission reduction calculated in monitoring report.	**CAR-3**	OK
4 Assessment of data and calculation of greenhouse gas emission reductions				
a	Is a complete set of data for the specified monitoring period available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the validator shall make the most conservative assumption theoretically possible in finalizing the verification report).	The complete set of data is available with the Project participant for monitoring period under consideration. However, the invoice raised by PP to MSEDCL and brake up of energy details for the month of Aug-11, Mar-12 and Dec-12 is not provided to verification team for review.	**CL-2**	OK
b	Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	The net electricity export figures are calculated by Suzlon from monitored data by control panel meters of WTGs, feeder meters and JMR readings. The energy breakup sheets for each feeder connected WTGs is prepared by Suzlon and provided to MSEDCL for checking and approval. MSEDCL prepares the feeder wise final energy break up sheet which contains the net energy export contribution for each WTG owner. Verification team has checked panel meter readings recorded online at CMS station along with energy breakup sheets from MSEDCL for WTGs owned by PP. The readings of electricity import and export provided in MSEDCL approved energy break sheets are matching with the invoices raised by PP to the MSEDCL. Hence same is accepted by verification team.	OK	OK

	CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
c	Have calculations of baseline emissions, proposed project emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in monitoring plan and applied methodology AMS ID version 14. The current monitoring period is chosen from 01/08/2009 till 31/12/2012. During the review of JMR cum energy break up sheet of MSEDCL for the month of Aug-09, it is identified that the JMR for Aug-09 was carried out on 30/07/2009 and hence there is possibility of overlapping of net electricity export data for 30th and 31st of July-2009 in current second verification period. Please clarify any double accounting of emission reductions happening in this verification period which were already considered in previous verification.	**CL-3**	OK
d	Have any assumptions used in emission calculations been justified?	Yes. The assumptions used in emission reduction calculations have been justified.	OK	OK
e	Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	The net power exported to the grid for the month of Oct-2009 is not correctly stated in ER sheet as per invoice for the month of Oct-09.	**CAR-4**	OK

Table 2: Resolution of Corrective Action / Forward Action / Clarification Requests.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CL-1 Section 1.3 of Monitoring report, states the revised name of PP i.e. ACB India Limited. Please provide supporting evidence towards change of name of project participant.	1-e	PP has changed company name to ACB (India) Private Limited and in this regards PP has submitted "Fresh certificate of Incorporation consequent upon change of name" to DOE.	Verification team has reviewed the "Fresh certificate of Incorporation consequent upon change of name" issued by Government of India-Ministry of Corporate Affairs. As per this certificate the name of company has been changed to ACB (India) Private Limited on 18/09/2009. Hence the title or the right of the project activity remains with the same company as earlier designated in VCS PD & VCS Validation report i.e. Aryan Coal Beneficiation Private Limited. Therefore CL-1 is **closed.**
CL-2 The complete set of data is available with the Project participant for monitoring period under consideration. However, the invoice raised by PP to MSEDCL and brake up of energy details for the month of Aug-11, Mar-12 and Dec-12 is not provided to verification team for review.	4-a	Invoice and breakup of energy (JMR) for the month of Aug-2011, March 2012 and Dec-2012 has been provided to the verification team.	Verification team reviewed the invoices raised by PP to MSEDCL. Also JMR cum energy break up sheet for the month Aug-2011, March-2012 and Dec-2012. The details of net electricity export to MSEDCL are matching from energy breakup sheet with that of invoice raised by PP. Also the same values are updated in emission reduction sheet by PP for emission reduction calculation. Therefore CL -2 is **closed.**
CL-3 The current monitoring period is chosen from 01/08/2009 till 31/12/2012. During the review of JMR cum energy break up sheet of MSEDCL for the month of Aug-09, it is identified that the JMR for Aug-09 was	4-c	PP has deducted generation of 30th and 31st of July 2009 from the total generation of August 2009. July daily generation data has also been provided	The response provided here for calculation of net power export for the month of Aug-09 is not matching with the calculation carried out for the month of Aug-09 in emission reduction sheet. Please

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
carried out on 30/07/2009 and hence there is possibility of overlapping of net electricity export data for 30th and 31st of July-2009 in current second verification period. Please clarify any double accounting of emission reductions happening in this verification period which were already considered in previous verification.		to the verification team. Response 2; Emission reduction calculation sheet has also been updated accordingly. Net export from the month of August 2009 is now 3703983.9 kWh, which is calculated by deducting 487700 kWh (generation of 30th and 31st July 2009) from the 4191683.9 kWh.	check. Comment 2: The revised response is in line with the values calculated in ER sheet. Hence the CL raised is **closed.**
CAR-1 Only one parameter i.e. EGy is mentioned in registered VCS-PD which is monitored by the project participant. However, the source of data mentioned for EGy is incorrect and not matching with the monitoring plan mentioned in registered VCS-PD.	3-b-ii	EG_y is Net Electricity exported by all WTGs to the grid in year y. Source of data monitored is Monthly electricity Invoice raised to MSEDCL. This correction has also been made in MR.	PP has done the corrections in revised Monitoring Report. The source of data for EGy is corrected as per registered VCS-PD i.e. now EGy is taken from the monthly electricity invoices raised by PP to MSEDCL. Hence CAR-1 is **closed.**
CAR-2 1) Monitoring report does not provide the Calibration details of the main and check meters used for monitoring of electricity export and import by the WTGs in project activity. 2) Calibration certificate for main and check	3-c	1) Monitoring report has been revised and includes the information on calibration details of the main meter and check meter used for the monitoring of electricity export and import by the WTGs in project activity 2) Calibration certificates for the feeder 6 have been provided to the	1) Now the revised monitoring report provides the calibration details of main and check meters used for monitoring the net power export to grid. The details are provided in section 3.3 in tabular format. Hence it is accepted 2) Verification team received all the calibration certificates for the main and check meters for stated monitoring period. The results of the calibration are

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
meters installed on feeder-6 at substation is not provided to verification team for review.		verification team.	within the maximum applicable limit of 0.2%. However the error of delayed calibration is applied by PP and emission reductions are calculated accordingly. Therefore CAR-2 is **closed.**
CAR-3 Registered monitoring plan of the VCS-PD specifies the calibration frequency of main and check meters to be maintained annually. However, same is not followed annually in current monitoring plan. Please demonstrate the accuracy of monitored data and its impact on emission reduction calculated in monitoring report.	3-e	There was gap in the prescribed time period for the calibration of the meters. For the feeder 5: there was 9 days gap in March 2011 and 4 month 11 days gap from March 2012 to July 2012 For feeder 6: there was 3 months& 9days gap from march 2011 to June 2011 and 1 month 11 days gap from June 2012 to July 2012. Being conservative, PP has applied correction factor for the whole months. This reduces the total emission reduction by the project activity.	Verification team reviewed the calibration certificates for the complete monitoring period. As identified by PP in revised monitoring report the calibration of main and check meters on Feeder-5 and Feeder-6 got delayed. Hence being conservative, PP has applied the results of delayed calibration i.e. maximum meter error of 0.2% applied to net electricity export to the grid. The above approach is accepted by verification team since the error is conservatively applied for the whole months starting from the month in which date of calibration is due to the month of date of delayed calibration. Therefore CAR-3 is **closed.**
CAR-4 The net power exported to the grid for the month of Oct-2009 is not correctly stated in ER sheet as per invoice for the month of Oct-09.	4-e	The Net power exported to the grid for the month of Oct 2009 is 1374293 kWh. Emission reduction sheet and MR has also been revised accordingly.	The correction done by PP is now evident in revised monitoring report as well as emission reduction calculation sheet. Therefore CAR-4 is **closed.**

Annexure II

Documents referred during Verification of the Project

// 1//	VCS Monitoring Report, version 06, dated 22/08/2013
// 2//	Registered PD vide id no. 298 dated 04/08/2008
// 3//	VCS Validation report of the Project having reference number Project No/Rev. No.: V-3-I-01-S-0033/ 01 dared 19/11/2009
// 4//	VCS Verification report of the project having reference number Project No/Rev. No.: V-3-I-01-S-0033-Ve/ 01 dared 20/12/2010 (Previous Verification)
// 5//	VCS Monitoring report template Current Version: v3.2 Issued: 4 October 2012
// 6//	Verified Carbon Standard Version 3 dated 4 October 2012 v.3.3
// 7//	VCS Validation and Verification Manual Version 3 dated 4 October 2012
// 8//	Clean development mechanism validation and verification standard, Version 04
// 9//	Emission Reduction Calculation Sheet for the verification period (01/08/2009-31/12/2012)
// 10//	Proof of registration as VCS Project activity from the VCS website: (https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=298&lat=17%2E169556&lon=74%2E906611&bp=1)
// 11//	Commissioning certificate for all the WTGs of the proposed project activity
// 12//	Power Purchase Agreements signed between M/s Aryan Coal 15 MW Wind Power Project in Maharashtra, India and MSEDCL for the total project activity
// 13//	Joint Meter Statements approved and issued by MSEDCL for the verification period (01/08/2009-31/12/2012)
// 14//	Invoice raised by the project participant to the MSEDCL for the verification period (01/08/2009-31/12/2012)
// 15//	Calibration certificate of all the Energy Meters from the year 2008 to 2012 of all the four Energy Meters for the project activity having serial numbers 04725787 (Check Meter of Feeder 5), 04725792 (Main Meter of Feeder 5),, 04725802 (Main Meter of Feeder 6) and 04725800 (Check Meter of Feeder 6).
// 16//	Daily Generation Report of the Project activity WTG for the month of July 2009
// 17//	Certificate of Incorporation consequent upon Change of Name of the PP from Aryan Coal Benefications Private Limited to ACB (India) Private Limited issued by Government of India, Ministry of Corporate Affairs dated 18/09/2009.
// 18//	Details of all the new meters after replacement is provided by MSEDCL via letter dated 07/01/2013.
// 19//	AMS I.D, Version 14 - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories – Grid connected renewable energy generation

Annexure III : List of Persons interviewed

List persons interviewed during the verification process or persons that contributed with other information that are not included in the documents listed above.

/1/	Dr. Sanjay Vashishtha	Founder & CEO First Green Consulting Private Limited
/2/	Mr Gaurav Kumar Sharma	Consultant - Renewable Energy & Carbon Advisory First Green Consulting Private Limited
/3/	Mr. Jagannath Mali	Assistant Manager, Suzlon Energy Limited
/4/	Mr. Ranoji C Padule	Manager, TS Wind Developers

Annexure IV :Curricula Vitae of the DOE'S Verification Team Members

Pratik Bhattacharya– Team Leader
Bureau Veritas Certification, Climate Change Lead Verifier
Graduate in Mechanical Engineering from Kavikulguru Institute of Technology and Science (Nagpur University) and Post graduate Diploma in Energy Management from Indian Institute of Social Welfare and Business Management (Calcutta University) and Certified Energy Auditor under Bureau of Energy Efficiency (Government of India, Ministry of Power). He has around 4 years of experience in System Designing (HVAC) and Energy Auditing. He has undergone intensive training on Clean Development Mechanism and Environment Management System. He is involved in validation and Verification of CDM and VCS projects activities.

Mr. Pramod Kamble-Team Member
Bureau Veritas Certification, Climate Change Lead Verifier
Graduate in Chemical Engineering from Mumbai University (MUICT). He has prior experience in CDM, VCS and CCX projects development. He has undergone intensive training on Clean Development Mechanism and completed CDM Verifier/Lead Verifier training course. He has hands on experience in carrying out energy audits for energy industries and buildings. At present he is involved in the Validation/verification of CDM and VCS projects.

Mr. Bhavesh Prajapati
Bureau Veritas Certification, Internal Technical Reviewer
Graduate in the field of Chemical Engineering and post graduate in finance (MBA-Finance). He has more than 8 years of Industrial work experience in the field of environment audits, consultancy of HVAC (pharmaceutical industry as well as commercial air conditioning) and utility services and project management of various Greenfield as well as gray field projects. He has undergone lead verifier's training on Clean Development Mechanism. He is involved in the Validation/verification projects of CDM and VCS.