

RENEWABLE ENERGY PROJECT BY LNB GROUP



EPIC Sustainability Services Private Limited

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Summary:

EKI Energy Services Limited has appointed EPIC Sustainability Services Private Limited to perform the first periodic verification of the emission reductions reported for the project titled “Renewable Energy Project by LNB Group” (Project ID: 1418) for the period from 31-March-2013 to 31-May-2015. The verification was based on the monitoring report, Version 02, dated 15/07/2015 and validated project document (PD)^{/1/} version 1.0 dated 24th-March-2015, corresponding validation report, monitoring reports and other supporting documents made available to the verification team by the client.

The project activity involves the installation of Wind and Solar Power Projects. The total installed capacity of the project is 27.20 MW; which involves installation and operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plants with total capacity of 5.00 MW located at different states; Rajasthan and Maharashtra in India. Thus the project activity displaces equivalent amount of electricity that would otherwise be generated in the fossil fuel dominated grid.

The verification team identified, through the verification process, 04 CARs, and 03 CRs. The PP has taken actions and submitted to EPIC the revised monitoring report^{/2/} and supporting evidence. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period^{/2/} are correctly calculated in the monitoring report, Version 02, dated 15/07/2015 based on the approved monitoring methodology, ACM 0002, version 16.0. Therefore, EPIC certifies the emission reductions amounting to 56,658.00 tCO₂e for the period 31/03/2013 to 31/05/2015 (both days inclusive).

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1 INTRODUCTION

1.1 Objective

EPIC Sustainability Services Private Limited (EPIC) has been contracted by EKI Energy Services Limited to undertake the (first periodic) independent verification of the project activity titled “Renewable Energy Project by LNB Group”.

- To verify that the actual monitoring system and procedures are in full compliance with the system and procedures described in the monitoring plan of validated PD^{/1/}, version 3.0 dated 24th March 2015 as well as with the applicable methodology;
- To verify that the data reported were accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction^{/3/} calculation; and
- To verify and certify GHG emission reduction^{/3/} reported for the project for the period from 31-March-2013 to 31-May-2015.

1.2 Scope and Criteria

The scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from “Renewable Energy Project by LNB Group”. The verification of this project was based on the validated and registered project document (PD)^{/1/}, validation report and monitoring reports^{/2/} and supporting documents made available to the verification team. These documents were reviewed against the requirements of the VCS standard version 3.4, VCS guidelines, the CDM Modalities and Procedures, related rules and guidance, and the Validation and Verification standard^{/4/} Version 9.0. The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

In line with VCS requirements and as per ISO 14064-3:2006 para A.2.3.2, a reasonable level of assurance is defined for the verification of the project.

The verification report is based on the Project Description^{/1/}, monitoring report^{/2/}, emission reduction^{/3/} calculation sheet and other supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. The verification opinion is assured through the credibility of all documents checked.

This implies that based on the process and procedures conducted EPIC should state whether the information in the PD^{/1/} is materially correct and is a fair representation of the of the actual project details, and is prepared in accordance with the VCS requirements and the applied CDM methodology for information pertaining to additionality, GHG quantification, monitoring and reporting.

1.4 Summary Description of the Project

The project activity is a large scale bundled Wind and Solar Power Projects. The total installed capacity of the project is 27.20 MW; which involves operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plants with total capacity of 5.00 MW located at different states; Rajasthan and Maharashtra in India.

Project Scenario: The project activity involves the installation of WTGs and solar power plant which reduces the anthropogenic emissions of greenhouse gases (GHGs) in to the atmosphere associated with the equivalent amount of electricity generation from renewable and cleaner energy source i.e. Wind and Solar. The electricity thus generated is already being supplied to the NEWNE regional grid. All the 18 WTGs and Solar power plant involved in this project have commissioned and connected with the NEWNE regional grid. The electricity thus generated is being exported to the NEWNE regional grid. The verification team has reviewed the commissioning certificates^{/5/} and power purchase agreements^{/6/}.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process consists of the following phases:

- i) a document review of the project design documents, monitoring reports and preparation of verification protocol;
- ii) on-site visit to the project activity and interviews with project developer and project consultant; and
- iii) resolution of outstanding issues and the issuance of final verification report and opinion.

In order to ensure transparency, a verification protocol was prepared for the project according to the VVS^{/4/} version 9.0 verification requirements and VCS Standard version 3.4. The verification protocol serves the following purposes:

- it organizes, details and clarifies the requirements that a VCS project is expected to meet;
- it ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed verification protocol is enclosed in Appendix of this report.

During the verification, non-fulfillment of the verification protocol criteria or identified risks to the fulfilment of project objectives were raised as either CAR or CR. Corrective Action Requests (CAR) were issued, where:

- i) mistakes had been made that directly impacted on the project results; or
- ii) VCS requirements had not been met; or
- iii) there was a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

The Clarification Requests (CR) were issued where additional information was needed to clarify issues, and Forward Action Requests (FAR) for issues relating to project implementation that required review during the first verification of the project activity.

The following team members from EPIC were involved in verification process:

Name	Role	Technical area	Components reviewed
Dr. R. Madhukar	Lead Auditor	Qualified for TA 1.2 Renewables under sectoral scope 01	Completeness check, desk review, onsite inspection, Interview with project representatives, issuance of findings, report preparation
Mr. A. Prabu Das	Technical Reviewer	Qualified for TA 1.2 Renewables under sectoral scope 01	Checking and verifying of information related to draft final report

2.2 Document Review

The verification was performed primarily based on the review of the monitoring report^{/2/} and the supporting documentation. This process included:-

1. a review of data and information presented to verify their completeness
2. a review of the Monitoring Plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
3. an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report^{/2/}, Version 01, dated 05/06/2015 was initially reviewed and further EPIC requested the PP to present the supporting evidences. Additional background information and documents related to the project performance were also reviewed by EPIC. Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CRs issued by EPIC. The documents reviewed by EPIC are listed in References section of this report. EPIC reviewed the final version of the monitoring report^{/2/} Version 02.0 dated 15/07/2015 to confirm that all changes agreed had been incorporated.

2.3 Interviews

After the review of the Project description and documents a site visit was carried out from 15th to 16th June 2015. During the site visit physical inspection of the project components followed by interviews with the on-site personnel was carried out to verify the project details. A follow-up meeting was also conducted with the project representatives. The following persons were interviewed.

Name & Designation	Details of Interview
Vishal R Jadhav, Engineer	Technical Details, Monitoring system, calibration frequency, Grid connectivity & power evacuation system / Infrastructure.

Santosh S.Sangar, Senior Operator	Voltage at stage wise, Metering details, calibration frequency and JMR details etc.
Mr. Deepak A. Potder, Operator	Operation and maintenance details

2.4 Site Inspections

An onsite visit was conducted for all the WTGs and Solar power plant located in two states (Rajasthan and Maharashtra), India. The verification team of EPIC visited the WTGs and solar power plant from 15th to 16th June 2015.

During the site visit, the actual on-site practices adopted and followed for the operation of the project were compared with the description given in the monitoring report^[7]. The grid-connectivity, metering practices, calibration^[7] and level of accuracy were examined. The archived data of the energy generated was also reviewed.

An on-site assessment was conducted as a part of verification activity and involved:

- 1) An assessment of the implementation and operation of the VCS project activity as per the registered PD
- 2) A review of information flows for generating, aggregating and reporting of the monitoring parameters
- 3) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan
- 4) A cross-check between information provided in the MR and data from other sources
- 5) A check of the monitoring equipment including calibration^[7] performance, and observations of monitoring practices against the requirements of the PD and the applied methodology
- 6) A review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

Resolution of Clarification and Corrective Action Requests

The objective of this phase of the verification was to resolve the corrective action requests and clarifications and any other outstanding issues which needed to be clarified prior to EPIC positive conclusion on the monitoring report and the project design. During the verification process four CARs and three CRs were raised.

All the CARs and CRs were resolved during this phase. In order to ensure the transparency of the validation process, the concerns raised and responses that were given are summarized in Appendix 1 of this report and documented in more detail in the Verification in Appendix 1. All the corrective actions have been incorporated into the monitoring report.

Internal quality control

A Technical Reviewer is appointed to review the final draft verification report. The comments made by the Technical Reviewer are taken into consideration and incorporated in the final report. The final report (after resolutions of all findings) is then submitted to the Head – Operations for review and approval.

2.5.1 Forward Action Requests

There are no FARs raised during this verification process.

2.6 Eligibility for Validation Activities

EPIC is accredited for validation and verification for the scopes 1-11 and 13-15 by CDM UNFCCC and as well as by the VCS board.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is not a part of any emission trading program, not sought or received any other GHG related environmental credit and project has not participated under Other GHG Programs. However the PP has provided an undertaking that no double counting would occur for the monitoring period and up to the current monitoring period verified he has not applied for any other GHG credits trading systems.

The verification team also checked the national as well as international credits trading systems to assess double counting risks and the web links for the same have been listed in the appendix 1 of this report.

3.2 Methodology Deviations

There is no methodology deviation involved.

3.3 Project Description Deviations

There are no project description deviations.

3.4 Grouped Project

The project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The verification based on the onsite observation, found that there is no material discrepancies between the project implementation and the project description. The verification team checked the status of monitoring plan the completeness of monitoring system and found no discrepancies between the actual monitoring system and the monitoring plan set in the validated project description. The verification team also confirmed that the project has been under operation since commissioning except for 2 MW wind project of M/s. Sidhidata Power LLP, Maharashtra which was commissioned but not put into operation mode because of ROW issue of the 220KV line connecting to Jath 220 KV GSS. Therefore, Generation of the WTG till date is zero. The verification team was able to conclude the project has been implemented as described in the validated project description.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The verification of all the data ex-ante and data ex-post (monitoring parameters) used for the calculation of baseline emissions, project emissions and leakage emissions are tabulated below.

Parameter		Conclusion by the verification team
Baseline emission factor (EF _{grid,y}) = 0.9770 tCO ₂ /MWh (Ex-ante) Source: Validated PD and Corresponding Validation report		The verification team has checked the value and found that the value is fixed ex-ante for the entire crediting period and the value is considered for this monitoring period also which is sourced from the validated PD and accepted by the verification team. The value is used consistently across the monitoring report ^{2/} , VER sheet. Hence accepted by the verification team.
Electricity supplied by the project activity to the Grid (EGy)		The verification team based on the on-site visit confirmed that net electricity supplied to the grid by each WTG and solar power plant is measured through the meter readings of the energy meters installed by electricity board, which have facility to record export and import of energy. The team has checked the electronic archiving of all the monitored data. Calibration^{7/} of all the energy meters will be undertaken at least once in 3 years. The accuracy class of the energy meters is 0.2s. The verification team has found that no WTG and solar energy meters is for due for calibration^{7/} during this monitoring period and meters were working with the intended accuracy. The monitoring frequency for EGy matches with that of the methodology, viz. hourly measurement and monthly recording. The cross checking is provided through the use of the invoice^{8/}
Electricity supplied by the project activity to the Grid (EGy)	Value in MWh	
EG _{y2013}	10,581.00	
EG _{y2014}	34,208.00	
EG _{y2015}	13,203.00	

		receipts. Project participant has included a few other variables in the monitoring plan to account for the uncertainty where the dates of the recorded data may not coincide with the verification period. The verification team therefore agrees that the project activity meets all the applicability conditions and all other stipulations of the validated PD. The reliability of the evidence, and the source and nature of the evidence is checked the requirements of the validated PD and found exactly matching. The verification team has checked the JMR ^{/9/} sheets, invoices ^{/8/} , VER sheet and monitoring report and found that the information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report are being followed as per the validated PD ^{/1/} and hence accepted by the verification team.
Baseline emission (BE y)		As per the validated PD, BEy is calculated as follows. $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ which is accepted by the verification team.
Baseline emission (BEy)	Value in tCO2e	
BE _{y2013}	10,338.00	
BE _{y2014}	33,421.00	
BE _{y2015}	12,899.00	
Project emission (PEy) = 0		The electricity generation from the renewable energy source i.e. wind & solar energy. Hence there is no project emission from the project activity which is accepted by the verification team.
Leakage (LEy) = 0		As per the validated PD ^{/1/} , there is no leakage identified for this project activity.
Emission reductions ^{/3/} (ERy)		As per the validated PD ^{/1/} , the emission reduction ^{/3/} is calculated as follows. $ER_y = BE_y - PE_y$
Emission reductions (ERy)	Value in tCO2e	

ER _{y2013}	10,338.00	
ER _{y2014}	33,421.00	
ER _{y2015}	12,899.00	

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The emission reductions^{/3/} are calculated on the basis of the JMR^{/9/} readings at the project location. The electrical meters are locked and sealed and thus are tamper free. Electricity generated by the WTGs and solar power plant are measured by the energy meters located at the location yard. In the project activity 5 WTGs located in Rajasthan are connected to main and check energy meters and 13 WTGs located in Maharashtra are connected to main and check energy meters. For the solar power plant located in Rajasthan there are two main and check energy meters.. The accuracy class of the energy meters is 0.2s and the calibration frequency is 3 years. The details of the energy meters as verified are indicated in appendix 2. As already mentioned in section 4.2, the readings of the JMR^{/9/} are taken jointly. The readings of the JMR^{/9/} are cross checked with the invoices^{/8/} issued by respective project participant to state electricity board. Other than this, several documents were submitted by the project participant as evidence to determine emission reductions and to cross check the values. These values were cross checked and the verification team is satisfied with the quality of the evidence used to determine emission reductions.

Apart from the JMR^{/9/}, daily generation is recorded and is reported to the local office of the O&M service provider. All the copies of such daily generation, comparison with previous year's generation, preventive maintenance schedule, breakdown records etc. are stored at the office of the O&M service provider at the site. A set of all the monitoring data is also sent to the head office of the PP. The data right from the commissioning of the WTG and solar power plant were found to be archived.

The site representative of the PP ensures that the monitoring of the site is done on a continuous basis by the O&M service provider. The representative is also informed within a day in case of any break down at the site. The representative was found to cross check the daily generation data.

4.4 Non-Permanence Risk Analysis

Not applicable for a renewable energy project.

5 VERIFICATION CONCLUSION

EPIC Sustainability Services Private Limited has been engaged by EKI Energy Services Limited to perform the first periodic verification of the VCS project "Renewable Energy Project by LNB Group" for the period from 31-March-2013 to 31-May-2015.

The verification was based on the validated PD^{/1/}, the baseline and monitoring methodology (ACM 0002 Version 16.0), the Monitoring Report^{/2/}, emission reduction^{/3/} spread sheets and other supporting documents made available to EPIC verification team by the project participant. The management of EKI Energy Services Limited was responsible for the preparation and reporting of GHG emissions data and the reported GHG emissions reduction on the basis set out within the project monitoring plan.

It is the responsibility of EPIC verification team to express an independent GHG verification opinion on the GHG emissions from the project for the monitoring period starting from 31-March-2013 to 31-May-2015 and on the calculation of GHG emission reductions from the project based on the verified emissions for the same period.

The verification was carried out in accordance with the requirements of the Validation and Verification standard Version 9.0 and VCS Standard 3.4. As a result of the verification, the verification team confirms that for the reporting period:

- all operations of the project were implemented as described in the registered PD^{/1/}, (project ID 1418),
- the monitoring plan is in accordance with the approved monitoring methodology, ACM0002 version 16 applied by the project activity.
- the monitoring has been carried out in accordance with the validated PD^{/1/} version 3.0 dated 24th March 2015.
- the monitoring aspects (i.e. additional monitoring parameters, monitoring frequency and calibration frequency) are in place and functional, with the installed equipment essential for generating emission reduction operating appropriately and the calibration of all the equipment had been carried out accordingly and appropriate adjustments had been made, and
- the GHG emission reductions achieved were calculated correctly on the basis of approved monitoring methodology ACM0002 version 16.

We have verified that the information included in the final monitoring report^{/2/} (version 2.0, dated 15th July 2015) was correct and that the emission reductions achieved had been determined correctly. In our opinion, the GHG emission reductions for the period from 31-March-2013 to 31-May-2015 stated in the latest revised monitoring report (version 2.0, dated 15th July 2015) for the project are fairly stated.

The verifier confirms that the GHG emission reductions were calculated without material misstatements for the whole monitoring period. Our opinion is based on the projects GHG emissions and resulting GHG emission reductions reported, and, to the valid and registered project baseline and monitoring documents. We confirm the following:

Verification period: From [31-March-2013] to [31-May-2015]

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2013	10,338.00	0	0	10,338.00
Year 2014	33,421.00	0	0	33,421.00
Year 2015	12,899.00	0	0	12,899.00
Total	56,658.00	0	0	56,658.00

Prepared by 	Approved by 
(Dr. R. Madhukar) Verification Team Leader	(Mr. K. S. Sudheendra) Head - Operations

6 REFERENCES

/1/	Project Description version 03 dated 24 th March 2015
/2/	Monitoring Report version 01 dated 5 th June 2015 and version 02 dated 15 th July 2015
/3/	Emission Reduction version 01 05 th June 2015 and version 02 dated 15 th July 2015
/4/	Validation and Verification Standard version 09
/5/	Commissioning Certificates of all WTGs and solar power plant.
/6/	Power Purchase Agreement for all WTGs and solar power plant
/7/	Calibration testing certificates for all WTGs and solar power plant
/8/	Invoices for energy generated raised by PP to SEB
/9/	Joint Meter Reading reports for all WEG's and solar power plant for the monitoring period

APPENDIX1:

Web links refers to the information verified by the VVB to ascertain that the project or individual project participants have not participated in the any of the other national and international carbon trading systems.

1. https://mer.markit.com/br-reg/public/index.jsp?entity=project&sort=project_name&dir=ASC&start=0&acronym=GS&limit=15&name=LNB&standardId=100000000000032
2. <http://cdm.unfccc.int/Projects/projsearch.html>
3. https://www.recregistryindia.nic.in/index.php/general/publics/accredited_regens
4. https://www.recregistryindia.nic.in/index.php/general/publics/accredited_regens
5. https://www.recregistryindia.nic.in/index.php/general/publics/accredited_regens
6. https://www.recregistryindia.nic.in/index.php/general/publics/accredited_regens

APPENDIX 2

Energy meter details

Project Promoter	Machine ID	Capacity in MW	DOC of Machine & Meter installed on	Due date calibration **	Accuracy Class	Make	Type	Sl. No. Main meter	Sl. No. Check meter
MAPL	DAN-T-12 DAN-T-59 DAN-T-60 DAN-T-61 DAN-T-88	10.00	31-Mar-13	30-Mar-2016	0.2s	SECURE	R3M021-436	RJB 78210	RJB 78212
PWEPL	GAL-03 GAL-06 GAL-07 GAL-08 GAL-09 GAL-10 GAL-18 GAL-22 GAL-23 GAL-24 GAL-26 GAL-33	10.20	29-Mar-14	28-Mar-2017	0.2s	Elster	Alpha A 1800	13769361	16595547
SPLL	MVT-83	2.00	31-Mar-14	30-Mar-2017	0.2s	Elster	Alpha A 1800	15687855	15687856
SSUL	NA	5.00	11-Aug-14	10-Aug-2017	0.2s	Elster	Alpha A 1800	13194928	13194929
						Elster	Alpha A 1800	13194931	13194930

Verification checklist

Project name : Renewable Energy Project by LNB Group

TABLE 1: VERIFICATION REQUIREMENTS BASED ON CDM VALIDATION AND VERIFICATION STANDARD VERSION 9.0

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
1 Compliance of the monitoring report with the monitoring report form The verification team shall determine whether the monitoring report was completed using the valid version of the applicable monitoring report form taking into account the grace period of the form if it has been revised.					
1.1 Has the monitoring report been completed using the valid version of the applicable monitoring report?	VVS	381	Yes, The monitoring report was completed using the latest and active version of the applicable monitoring report.	OK	OK
2. Compliance of the project implementation with the registered project design document.					

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
2.1 Was an on-site visit conducted for this verification? If no, please justify the rationale of the decision.	VVS	384	The verification team visited physically to the sites mentioned in the validated PD and monitoring report and found that all the WTGs and solar power plant were commissioned and operational as on date except for 2 MW wind project of M/s. Sidhidata Power LLP, Maharashtra which was commissioned but not put into operation mode because of ROW issue of the 220KV line connecting to Jath 220 KV GSS. Therefore, Generation of the WTG till date is zero. The team also visited substations which are at the windmill site itself. The electricity is supplied to state electricity board.	OK	OK
2.2 Are all physical features of the VCS project activity proposed in the registered PD in place?	VVS	384	The physical features, as required by the registered PD, include power generation facility i.e. WTGs/solar and energy meters. The verification team was able to confirm that all physical features of the proposed project activity matches with that mentioned in the registered PD. Unique identification number for all WTGs and solar project location matches with that mentioned in the PD. Following corrective actions is raised with respect to MR completion:- The section 1.9 of monitoring report states that 'the project has not participated under Other GHG Programs or received any other GHG related environmental credit'. However no documentary evidence has been provided to substantiate the same.	CAR-1	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
2.3 Have the project participants operated the proposed VCS project activity as per the registered PD or any approved revised PD?	VVS	384	PP has implemented and operated the project as per the registered PD. This was also evident from the invoices and JMR reports available at substations provided by the PP. Following corrective request is raised with respect to MR completion:- The details provided under section 1.6 project crediting period of monitoring report are not in line with the requirement of VCS standard version 3.3	CR-1	OK
2.4 For this monitoring period, what is the status of the implementation of the project? For project activities that consist of more than one site, the DOE shall describe the status of implementation and starting date of operation for each site.	VVS	384	All the windmills and solar power plant in the project activity are commissioned and operational except for 2 MW wind project of M/s. Sidhidata Power LLP, Maharashtra which was commissioned but not put into operation mode because of ROW issue of the 220KV line connecting to Jath 220 KV GSS. Therefore, Generation of the WTG till date is zero.	OK	OK
2.5 For project activities with phased implementation, what is the progress of the proposed project activity achieved in each phase under verification. If the phased implementation is delayed, describe the reasons and present the expected implementation dates;	VVS	385a	All the windmills and solar power plant in the project activity are commissioned and operational except for 2 MW wind project of M/s. Sidhidata Power LLP, Maharashtra which was commissioned but not put into operation mode because of ROW issue of the 220KV line connecting to Jath 220 KV GSS. Therefore, Generation of the WTG till date is zero.	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
2.6 Describe the actual operation of the project activity.	VVS	385b	All the windmills and solar power plants are commissioned and operational. The verification team based on the on-site visit confirmed that net electricity supplied to the grid by each WTG/solar is measured through the meter readings of the energy meters installed by electricity board, which have facility to record export and import of energy. The team has checked the electronic archiving of all the monitored data.	OK	OK
2.7 Any information (data and variables) provided in the monitoring report that is different from that stated in the registered PD or any approved revised PD? (that has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in the future monitoring)	VVS	385c	No such variations in the monitoring report.	OK	OK
3. Compliance of the registered monitoring plan with the monitoring methodology including applicable tool(s) and the standardized baseline The verification team shall determine whether the registered monitoring plan is in accordance with the applied methodology including applicable tool(s) and, where applicable, the applied standardized baseline.					

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
3.1 For monitoring aspects that are not specified in the methodology and, where applicable, the standardized baseline, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency), the DOE should bring to the attention of the Board issues which may enhance the level of accuracy and completeness of the registered monitoring plan.	VVS	387	Not Applicable	OK	OK
4. Compliance of monitoring activities with the registered monitoring plan The verification team shall determine whether the monitoring of parameters related to the GHG emission reductions in the registered CDM project activity has been implemented in accordance with the registered monitoring plan.					
4.1 Has the monitoring plan been properly implemented and followed by the project participants?	VVS	390 (a)	Yes. Monitoring plan and applied methodology have been properly implemented and duly followed by PP.	OK	OK
4.2 Have all parameters stated in the monitoring plan, and relevant CDM Executive Board decisions been sufficiently monitored and updated as applicable, including: i) project emission parameters	VVS	390 (b)	For wind and solar projects, there is no project emission. It is as per applied methodology.	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
ii) baseline emission parameters			Baseline emission is based on the net electricity exported to the grid. Monthly net electricity generation from the WTGs/solar is calculated from the JMR and invoices. As per registered PD, Emission factor was calculated ex ante and it remains the same for the entire crediting period. The values thus calculated are used for calculating the baseline emission. So, the verification team concludes that baseline emission is calculated as per VCS requirements.	OK	OK
iii) leakage parameters			This parameter was adequately justified in the monitoring report.	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 is demonstrated that project management system procedures, including responsibility and authority of monitoring and reporting activities are comply with registered monitoring plan. The emergency preparedness mentioned in the monitoring report is complete.	OK	OK
4.3 Has the equipment used for monitoring is in accordance with section 4.5 below and is controlled and calibrated in accordance with the monitoring plan, the applied methodology, the applied standardized baseline, the Board guidance, local/national standards, or as per the manufacturer's specification?	VVS	390 (c)	It is found that there is no calibration due for any of the wind mill and solar power plat. The energy meters are factory tested and supplied for commissioning to the state electricity board, which certifies its installation while the WTG is commissioned in line with the Power Purchase Agreement (PPA). It has to be calibrated every 3 years. Following corrective action is raised with respect to MR completion:- In section 3.2/3.3, under monitoring equipment, the meters used to monitor the data/parameter including type, accuracy class, and serial number of equipment, are not provided. The details of energy meter calibrations and supporting documents for the same are not provided to the verifica-	CAR-2 CAR-3	OK OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
			tion team. The details of the monitoring system including the generation voltage and voltage level at which it is supplied to the grid is not provided the documentary evidence for verification.		
4.4 Are monitoring results consistently recorded as per approved frequency?	VVS	390 (d)	Yes, the frequency of calibration of Energy meters is mentioned explicitly in the monitoring report once in 3 years.	OK	OK
4.5 Have quality assurance and quality control procedures been applied in accordance with the monitoring plan or revised monitoring plan?	VVS	390 (e)	The readings in these meters is taken by State Electricity Board (SEB) officials and used for billing purposes. It is clearly indicated that in the monitoring report the activities related to the project, e.g. Measurement, calculation, reporting complies with the procedures defined in the registered PD and applied methodology. The details of energy meter and calibrations details are provided in Appendix I of the monitoring report. For all the energy meters calibration is based on the requirements of the registered PD which is three years from the date of initial calibration.	OK	OK
5. Compliance with the calibration frequency requirements for measuring instruments Determine whether the calibration of those measuring equipments that have an impact on the claimed emission reductions is conducted by the project participants at a frequency specified in the applied monitoring methodology, the applied standardized baseline and/or the monitoring plan.					
5.1 If there is delayed and the calibration has been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available), has the following	VVS	395	There is no instance observed relating to this aspect in this monitoring period	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
conservative approach adopted in the calculation of emission reductions: (a) Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration, if the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error; or (b) Applying the error identified in the delayed calibration test, if the error is beyond the maximum permissible error of the measuring equipment.					
5.2 The verification team confirm that the error has been applied: (a) In a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed emission reductions; (b) For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	VVS	396	There is no instance observed relating to this aspect in this monitoring period.	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
5.3 In cases where the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification, the verification team, prior to finalizing verification, shall request the project participants to conduct the required calibration and shall determine whether the project participants have calculated the emission reductions conservatively using the approach mentioned in paragraph 4.2 above.	VVS	397	There is no instance observed relating to this aspect in this monitoring period.	OK	OK
5.4 In cases where the verification team determines that it is not possible for the project participants to conduct the calibration at a frequency specified by either the applied methodology, the applied standardized baseline, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of project participants (For example, due to the contractual terms between the project participant and purchasing/selling entities), the verification team, shall follow the requirements for post registration changes in section of E of the VVS.	VVS	398	There is no instance observed relating to this aspect in this monitoring period	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
5.5 In cases where neither the applied monitoring methodology, where applicable, the applied standardized baseline nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, the verification team shall determine whether the equipments are calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification. If neither local/national standards nor the manufacturer's specification are available, international standards may be used. Refer to appendix 1 of the VVS for an illustrative example to apply the above requirements.	VVS	399	Not Applicable	OK	OK
6.0 Assessment of data and calculation of emission reductions or net removals The verification team shall assess the data and calculations of GHG emission reductions or net anthropogenic GHG removals achieved by/resulting from the registered CDM project activity by the application of the selected methodology and, where applicable, the selected standardized baseline					
6.1 The verification team shall determine whether: A complete set of data for the specified monitoring period is available. If only partial data are available because activity levels or non-	VVS	402 (a)	Yes, the complete set of data for the specified monitoring period is available.	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
activity parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall either raise a CAR for the project participants or the coordinating/managing entity to comply with the requirements of the appendix to the Project standard or submit a request for deviation prior to submitting the request for issuance, if appropriate;					
6.2 Has Information provided in the monitoring report has been cross-checked with other sources such as plant logbooks, inventories, purchase records and laboratory analysis;	VVS	402 (b)	The energy generated is based on the Joint Meter Readings (JMR), which are taken monthly. Based on this the PP has raised invoices relating to financial transactions. Following corrective action and corrective request is raised with respect to MR completion and document requirement:- The EB bills/JMR (Manifold Agri crops Pvt. Ltd., Sidhidata Power LLP and Sidhidata Solar Urja Ltd.) to crosscheck the values of net electricity were not submitted by PP. The invoice submitted for verification the net export of MAPL and PWEPL for the month of May 2015 is not available. Please justify the value selected in ER calculation. Clarify, For Parmarth wind energy the net export value for the month of March 2014 taken for ER calculation is not matching with JMR and invoice.	CAR-4 CR-2 CR-3	OK OK OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
6.3 Have calculations of baseline GHG emissions or baseline net GHG removals, project GHG emissions or actual net GHG removals and leakage GHG emissions, have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline;	VVS	402 (c)	Yes, the information in the report has been crosschecked with the JMR reading along with invoices raised by the PP to the State Electricity board and the values used in the monitoring report are found to be correct. The equations used for calculating the emission reductions are in accordance with the methodology and in line with the registered monitoring plan.	OK	OK
6.4 Any assumptions used in emission calculations? If yes, they been justified?	VVS	402 (d)	Yes. Emission factor which is relevant as far as this project is concerned. The emission factor is determined ex ante and fixed for the crediting period and is correctly applied by the PP.	OK	OK
6.5 Have appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied;	VVS	402 (e)	Yes, Verification team confirms that grid emission factor used in MR for ER calculation is 0.9770 (NEWNE), which is exactly the same as the ex-ante fixed value in the registered PD.	OK	OK
6.6 For a registered VCS project activity using an approved standardized baseline that standardizes baseline emissions, have the standardized value(s) of the parameter(s) are applied using the correct version of the applied standardized baseline in accordance with the Project standard.	VVS	402 (f)	Not applicable	OK	OK
6.7 The pro-rata approach was correctly applied to the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the Project standard, if the monitoring period starts before 31 December 2012 and ends anytime thereafter;	VVS	402 (g)	The monitoring period for the project activity from 31 st March 2013 to 31 st May 2015 and the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the Project standard.	OK	OK

Checklist Questions	Ref.	§	Comments by verifier	Draft Concl	Final Concl
6.8 The first day when CERs are being claimed is correctly specified in accordance with the Project cycle procedure, if the current monitoring period covers the first day of the renewed crediting period.	VVS	402 (h)	The verification confirms that the current monitoring period inclusive of both the days.	OK	OK

TABLE 2: RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Verification team conclusion
<u>CAR 01</u> The section 1.9 of monitoring report states that ‘the project has not participated under Other GHG Programs or received any other GHG related environmental credit’. However no documentary evidence has been provided to substantiate the same.	Section 2.2	Declaration Letter is being provided along with this submission.	The project participant has provided the undertaking letter as documentary evidence to confirming that ‘the project has not participated under Other GHG programs or received any other GHG related environmental credit’ for the monitoring period. The verification team also verified other publically available GHG databases to confirm the same and was found to be appropriate. Conclusion CAR 01 Closed
<u>CAR 02</u> In section 3.2/3.3, under monitoring equipment, the meters used to monitor the data/parameter including type, accuracy class, and serial number of equipment, are not provided. The details of energy meter calibrations and supporting documents for the same are not provided to the verification team.	Section 4.3	Meter & calibration details are now included in the MR. DOE is requested to refer the Appendix I of the MR	The details of the energy meter have been provided in the revised monitoring report version 2. The project participants have been provided the initial energy meter testing certificates for all the WTGs and solar power plant is on the date of commissioning only, then the indicated validity can be confirmed. The calibration of all the energy me-

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Verification team conclusion
			ters will be undertaken at least once in 3 years. So that calibration certificates for energy meter is not required for this monitoring period. The verification team has verified all the documents provided by PP are found to be appropriate. Conclusion CAR 02 is Closed
<u>CAR 03</u> The details of the monitoring system including the generation voltage and voltage level at which it is supplied to the grid is not provided the documentary evidence for verification.	Section 4.3	Line Diagrams for all site is being provided along with this submission to the DOE	The project participant has submitted the single line diagram for all the WTGs/solar plant to confirm the voltage level which is supplied to the grid. Conclusion CAR 03 Closed
<u>CAR 04</u> The EB bills/JMR (Manifold Agricrops Pvt. Ltd., Sidhidata Power LLP and Sidhidata Solar Urja Ltd.) to crosscheck the values of net electricity were not submitted by PP.	Section 6.2	The EB bills/JMR (Manifold Agricrops Pvt. Ltd. and Sidhidata Solar Urja Ltd.) is being provided along with this submission. Further for Sidhidata Power LLP WTG is commissioned but due to ROW issue of the	The Project participant has provided the EB bills/JMR to the verification team and invoices is used to cross check values of net electricity supplied to the grid.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Verification team conclusion
		220KV line connecting to Jath 220 KV GSS WTG is not put into operation mode. Therefore, Generation of the WTG till date is zero.	For Sidhidata Power LLP the WTG is not in operation because of ROW issues. For this monitoring period the generation of the WTG is zero. The same has been confirmed during site visit. Conclusion CAR 04 Closed
<u>CR 01</u> The details provided under section 1.6 project crediting period of monitoring report are not in line with the requirement of VCS standard version 3.3.	2.3	section 1.6 in the MR has been updated, DOE requested to refer the same	The project crediting period is now in line with the requirement of VCS standard version 3.3 in the revised monitoring report. The same has been checked by the verification team and found to be correct. Conclusion CR 01 Closed
<u>CR 02</u> The invoice submitted for verification the net export of MAPL and PWEPL for the month of May 2015 is not available. Please justify the value selected in ER calculation.	6.2	Invoices for MAPL and PWEPL for the month of May 2015 are being provided along with this submission.	The verification team verified the invoices of MAPL and PWEPL for the month of May 2015 the net export value is taken for ER calculation is found to be correct. Conclusion CR 02 Closed

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Verification team conclusion
<u>CR 03</u> Clarify, For Parmarth wind energy the net export value for the month of March 2014 taken for ER calculation is not matching with JMR and invoice.	6.2	Net export value for the month of March 2014 has been correctly revised in the ER sheet	The project participant has corrected the typo error in the ER sheets. Now the net export values are consistent with JMR and invoice. Conclusion CR 03 Closed