

VERIFICATION OF “BUNDLED WIND POWER PROJECT IN RAJASTHAN BY ORANGE RENEWABLE POWER PRIVATE LIMITED”

EPIC Sustainability

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Summary:

Orange Renewable Power Private Limited has appointed EPIC Sustainability Services Private Limited to perform the first periodic verification of the emission reductions reported for the project titled "Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited" (Project ID: 1465) for the period from 31-March-2013 to 31-March-2015. The verification was based on the validated project description (PD)^{B1/} version 2.0 dated 25-March-2015, corresponding validation report and other supporting documents made available to the verification team by the client.

The project activity is a Grid connected wind power project implemented in Rajasthan, India. The total capacity of the bundled project activity is 59.4 MW which consist 39.9 MW in Jaisalmer district & 19.5 MW in Pratapgarh District of Rajasthan. The project is promoted by "Orange Jaisalmer Wind Energy Private Limited" & "Orange Renewable Power Private Limited" of which the "Orange Renewable Power Private Limited" is the representative of this bundled project. The purpose of the project activity is to generate clean electricity with utilization of wind energy.

The verification team identified, through the verification process, ten CARs and one CL. No FAR is raised in this verification. The client has taken actions and submitted to EPIC the revised monitoring report and supporting evidence. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period are correctly calculated in the monitoring report, Version 2, dated 04-November-2015. Therefore, EPIC certifies the emission reductions amounting to 227,611 tCO₂e for the period 31-March-2013 to 31-March-2015 (both days inclusive).

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1 INTRODUCTION

1.1 Objective

EPIC Sustainability Services Private Limited (EPIC) has been contracted by Orange Renewable Power Private Limited to undertake the first periodic independent verification of the project activity titled “Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited”.

- 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, version 2.0 dated 25-March-2015 as well as with the applicable methodology;
- To verify the monitoring report with deviations are in compliance with monitoring plan and VCS rules
- 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 calculation; and
- To verify and certify GHG emission reduction reported for the project for the period from 31-March-2013 to 31-March-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 ‘Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited’. The verification of this project was based on the validated and validated project description (PD)^{/B1/}, validation report^{/B1/} and supporting documents made available to the verification team. These documents were reviewed against the requirements of the VCS standard version 3.5, VCS guidelines, the CDM Modalities and Procedures, related rules and guidance, and the VCS Validation and Verification manual Version 3.1^{/B2/}.

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. This implies that based on the process and procedures conducted EPIC should state whether the information in the monitoring report is materially correct and is a fair representation 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 Grid connected wind power project implemented in Rajasthan, India. The total capacity of the bundled project activity is 59.4 MW which consist 39.9 MW in Jaisalmer district & 19.5 MW in Pratapgarh District of Rajasthan. The project is promoted by “Orange Jaisalmer Wind Energy Private Limited” & “Orange Renewable Power Private Limited” of which the “Orange Renewable Power Private Limited” (ORPPL) is the representative of this bundled project. The purpose of the project activity is to generate clean electricity with utilization of wind energy. The details of the bundled project are given below:

PPs	Orange Jaisalmer Wind Energy Private Limited	Orange Renewable Power Private Limited
Location	Jaisalmer District	Pratapgarh District
Capacity of each WTG	2.1 MW	1.5 MW
WTG Make	Suzlon	ReGen
Model Number	S88	V82
Total Number of WTGs	19	13
Total Capacity	39.9 MW	19.5 MW
Commissioning Date	31-March-2013	31-March-2013

All the WTGs are commissioned on 31-March-2013 and the same is verified through commissioning certificates. The project activity is to harness the renewable resources of wind power and thereby displace equivalent electricity from the fossil fuel dominated NEWNE grid. The exact geographical locations of the WTGs mentioned in the MR has been checked during the site visit.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process consists of the following phases:

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

2.2 Document Review

The following table outlines the documentation reviewed during the verification:

Ref. No.		Reference Document
/P1/	/P1.1/	VCS Monitoring report of the monitoring period 1 (31-March-2013 to 31-March-2015), version 01 dated 12-May-2015
	/P1.2/	VCS Monitoring report of the monitoring period 1 (31-March-2013 to 31-March-2015), version 02 dated 04-November-2015 (Report ID: ORPPLMR_01)
/P2/	/P2.1/	ER Calculation sheet for the monitoring period 1 (31-March-2013 to 31-March-2015), version 01 dated 12-May-2015
	/P2.1/	ER Calculation sheet for the monitoring period 1 (31-March-2013 to 31-March-2015), version 01 dated 04-November-2015
/P3/		Monthly Joint Meter Reading statements & share certificates for the monitoring period 31-March-2013 to 31-March-2015
/P4/		<u>OJWEPL GSS main meter:</u> Calibration Certificate of energy meter (Sr No: RJB80790), testing dated 29/03/2013 Calibration Certificate of energy meter (Sr No: RJB80790), testing dated 13/01/2015 <u>OJWEPL GSS check meter:</u> Calibration Certificate of energy meter (Sr No: RJB80791), testing dated 29/03/2013 Calibration Certificate of energy meter (Sr No: RJB80791), testing dated 13/01/2015 <u>OJWEPL PSS Feeder-1 main meter:</u> Calibration Certificate of energy meter (Sr No: RJB8198), testing dated 29/03/2013 Calibration Certificate of energy meter (Sr No: RJB8198), testing dated 13/01/2015 <u>OJWEPL PSS Feeder-1 check meter:</u> Calibration Certificate of energy meter (Sr No: RJB78200), testing dated 29/03/2013 Calibration Certificate of energy meter (Sr No: RJB78200), testing dated 13/01/2015 <u>OJWEPL PSS Feeder-2 main meter:</u> Calibration Certificate of energy meter (Sr No: RJB78201), testing dated 29/03/2013 Calibration Certificate of energy meter (Sr No: RJB78201), testing dated 13/01/2015 <u>OJWEPL PSS Feeder-2 check meter:</u> Calibration Certificate of energy meter (Sr No: RJB78203), testing dated

	29/03/2013 Calibration Certificate of energy meter (Sr No: RJB78203), testing dated 13/01/2015 <u>ORPPL GSS Main Meter:</u> Calibration Certificate of energy meter (Sr No: ASH13815), testing dated 03/07/2012 <u>ORPPL GSS Check Meter:</u> Calibration Certificate of energy meter (Sr No: ASH13816), testing dated 03/07/2012
/P5/	Commissioning Certificate of OJWEPL (commissioning date 31/03/2013) Commissioning certificate of ORPPL (commissioning date 31/03/2013)
/P6/	Power Purchase Agreements signed with the power distribution company dated 21/03/2013
/P7/	Electricity sale invoices for the months March-2013 to March-2015
/P8/	Declaration from PP confirming that the project is not claiming any other environmental credits other than VCU.

Background investigation and other referred documents/websites:

Ref. No	Document
/B1/	Validation Documents: VCS-Project Description, version 02, dated 25-March-2015 Validation report, version 02, dated 30-March-2015
/B2/	VCS Program Documents: VCS Standard, version 3.5 VCS Validation Verification Manual, version 3.1 VCS Program guide, version 3.5
/B3/	Approved CDM Baseline & Monitoring Methodology: ACM0002, version 16.0
/B4/	Central Electricity Authority -CO₂ Emission Baseline Database, version 10
/B5/	Central Electricity Authority Notification for metering regulation, dated 17-March-2006
/B6/	<u>Other GHG Program Registry:</u>

	Gold standard Registry: https://mer.markit.com/br-reg/public/index.jsp?entity=project&sort=project_name&dir=ASC&start=0&entity_domain=Markit,GoldStandar CDM: http://cdm.unfccc.int/Projects/projsearch.html REC: https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens
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2.3 Interviews

After the review of the Monitoring Report and documents a site visit was carried out on 14 & 15-October-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	Company	Interview Topics
Mr. Sunil Lalwani Asst. Manager	Orange Renewable	Project Design, Technical Details, Monitoring procedure, Incidents during the monitoring period.
Mr. Hardeep Sr. Engineer	Orange Renewable	
Mr. Rameswar A.Er,	RVPNL	Monitoring points, Procedure for calculation of net meter, JMR generation
Mr. Vamsi Krishna Consultant	Kosher Climate	Technical details, ER calculations, Reporting

2.4 Site Inspections

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 validated 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 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's verification conclusion on the monitoring report. During the verification process ten CARs and one CL were raised.

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

A Technical Reviewer is appointed to review the final draft verification report and the final 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

No Forward Action Request (FAR) is raised in this verification process. Also no FAR was raised in the validation report^{/B1/} which needs to be addressed during the verification.

2.6 Eligibility for Validation Activities

EPIC has been 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 applied for other GHG programs such as CDM, GS, REC etc. The same is verified through the declaration letter from PP confirming that the project is not claiming any other environmental credits^{/PB/}. The verification team also checked other GHG program registries^{/B6/} and found that the project is not registered under any other GHG program.

3.2 Methodology Deviations

No methodology deviations found in this monitoring period.

3.3 Project Description Deviations

The following deviations from project descriptions are found in the monitoring report:

Original description in PD	Revised description in MR	Verification team's opinion
Net electricity supplied will be calculated based on the difference between calculated values of "export", "import" and "transmission loss" on the EB energy meter at the "evacuation point" and at "220 kV sub station". Transmission loss is calculated on pro-rata basis as per the readings of 220KV substation & "primary metering Point". (Net Electricity = Export – Import – Transmission Loss)	Net electricity supplied is calculated based on the difference between calculated values of "export" (which already accounts for losses during transmission) and "import" on the EB energy meter at the Government substation. Transmission loss is accounted in Net export at substation based on the readings of Government substation & "primary metering Point". (Net Electricity = Net Export – Import)	As per actual billing procedure, the net electricity is calculated based on the apportioned export & import of readings which are estimated based on PSS meter/controller readings and GSS meter reading. This does not account transmission loss separately. The PP also included apportioning procedure which is not part of validated PD. The apportioning procedure is verified by recalculating the final values from the PSS meter/controller reading and GSS reading. So, the revised description in MR is found to be correct. It is a minor correction in calculation method and this change in description does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario.
Source of net electricity is Joint Meter Reading (JMR)	Source of net electricity is Joint meter reading (JMR) and Share certificate.	Since the JMR provides only GSS meter reading, the net electricity cannot be sourced from JMR only. The project developer (Suzlon/ReGen) calculates the apportioned export, import and net electricity for each project owner by using PSS meter/controller reading and GSS meter reading. The same is provided in the share certificate for each project owner. Hence the source for net electricity provided in the MR is appropriate. It is a minor correction and this correction does not impact the

		applicability of the methodology, additionality or the appropriateness of the baseline scenario.
The voltage level of substation is 220 kV	Voltage level of OJWEPL PSS is 220kV, OJWEPL GSS is 400kV and ORPPL GSS is 132kV.	the voltage level of all the PSS & GSS for each project (as applicable) are not specifically mentioned in the validated PD. The same is corrected appropriately in the MR as per actual site condition. The voltage levels mentioned in the MR of the substations are verified during site visit and found to be correct. This correction does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario.

As explained above, these changes are minor corrects which does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario of the project.

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 except the deviations mentioned in section 2.2.2 of MR which are not significant in the view of VCS applicability. The project is not applied for under any other GHG scheme and there will not be any double counting and the same is confirmed by checking other GHG program registries^{/B6/}. 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) including data measurement, data transfer, data archiving, aggregation and calculation of baseline emissions, project emissions and leakage emissions are tabulated below.

Parameter	Value considered	Conclusion by the verification team
Ex-Ante Parameter		
EF _{grid,OMsimple,y} - Operating margin CO ₂ emission factor of NEWNE Grid	0.9857 tCO ₂ /MWh	The data is calculated from Central Electricity Authority -CO ₂ Emission Baseline Database, version 10. The calculation is as per the procedures provided in 'Tool to calculate emission factor of an electricity system'. The CEA database ^{/B4/} is verified and the value considered is found to be correct.
EF _{grid,BM,y} - Build margin CO ₂ emission factor of NEWNE grid	0.9495 tCO ₂ /MWh	
EF _{grid,CM,y} - Combined margin CO ₂ emission factor of NEWNE grid	0.9766 tCO ₂ /MWh	
Ex-Post Parameter		
EG _{facility,y} ¹ - Quantity of net electricity supplied to the grid during the year y	233,065 MWh	EG_{facility,y} is sourced from Monthly Joint meter reading (JMR) and the energy share certificates. In both project locations, two metering is done. One at generation site (PSS meter reading for OJWPL & controller reading for ORPPL) and another at the government substation as explained below. <u>OJWEPL:</u> PSS Reading: OJWEPL's 10 WTGs are connected to the feeder SEL 194 & 9 WTGs are connected to the feeder SEL 195. Energy meters are installed on both feeders at Suzlon's pooling substation (PSS). Similarly WTGs other proponents (which are not part of this project) located in the same location are metered through separate feeders in PSS. Both import & export readings are recorded monthly by Suzlon. <u>GSS Reading:</u> At the Government substation

¹ If the project activity is the installation of a Greenfield power plant, then: $EGPJ,y = EGfacility,y$

		(GSS), an energy meter is installed which records the bulk reading of all the WTGs (project & non-project WTGs) at the injection point. The monthly readings of import & export are jointly recorded by DISCOM and Suzlon (on behalf of PP) and the same is provided in the joint meter reading (JMR) statement. Based on the GSS reading and PSS reading of each feeder, the Suzlon apportions the export & import reading for each project owner as per the procedure given in the MR and provides the apportioned import & export in monthly share certificate. The apportioned procedure mentioned in MR is correct which is confirmed by recalculating the final values from PSS & GSS reading. The net electricity supplied to grid by project WTGs are calculated difference between apportioned export & import value provided in the share certificate. The same values are considered for the ER calculation. <u>ORPPL:</u> <u>Controller Reading:</u> Each WTGs of ORPPL are equipped controller energy meter which records the energy generation readings of respective WTG continuously. Similarly, WTGs other proponents in the same location (which are not part of this project) are metered through the respective WTG controllers. The energy generation readings of all WTGs are recorded monthly by ReGen. <u>GSS Reading:</u> At the Government substation (GSS), an energy meter is installed which records the bulk reading of all the WTGs (project & non-project WTGs) at the injection point. The monthly readings of import & export are jointly recorded by DISCOM and ReGen (on behalf of PP) and the same is provided in the joint meter reading (JMR) statement. Based on the GSS reading and controller reading of each WTG, the ReGen apportions the export & import reading for each project owner as per the procedure given in the MR and provides the apportioned import & export in monthly share
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		certificate. The apportioned procedure mentioned in MR is correct which is confirmed by recalculating the final values from GSS & controller reading. The net electricity supplied to grid by project WTGs are calculated difference between apportioned export & import value provided in the share certificate. The same is considered for the ER calculation. The bulk meter readings are crosschecked through monthly JMRs^{/P3/} readings and the apportioned data are crosschecked through share certificate^{/P3/} provided by project developer. Also the net electricity supplied to grid by OJWEPL & ORPPL are crosschecked with the sale invoices^{/P7/} raised by the each PP to the DISCOM and found to be correct. The total quantity of net electricity supplied to grid by the project ($EG_{\text{facility},y}$) calculation provided in the ER calculation sheet^{/P2/} is verified and found to be correct. Hence the value considered for this parameter is correct.
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As per the methodology, the baseline emission is calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (tCO₂)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the current project activity in year y (MWh/yr)

The emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y Emission reductions in year y (tCO₂e/yr)

BE_y Baseline emissions in year y (tCO₂e/yr)

PE_y Project emissions in year y (tCO₂e/yr)

Since there is no project emission or leakage emission involved in this project activity, the PEy & LEy are considered as zero.

The PP submitted emission reduction calculation in a excel sheet^{/P2/}. The excel sheet is clear, unprotected and easily viewable. The calculation in the excel sheet is verified and found be correct. The methods and formulae set out in the project description for calculating baseline emissions, project emissions and leakage are correctly followed in the monitoring report and ER calculation sheet.

All the values are provided in the MR and ER calculation sheet are cross verified with its sources and confirmed no manual transposition errors between data sets have occurred. Also the consistency of values within MR is checked and found to be OK.

Hence verification team conclude that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The only monitoring parameter in the project is Quantity of net electricity supplied to the grid during the year y (**EG_{facility,y}**). The monthly calculation of net electricity by the project WTG is done by project developer (Suzlon or ReGen) based on the project site metering (PSS energy meter for OJWEPL or controller for ORPPL) and government substation (GSS) bulk metering and the same is provided in the share certificate. All the monthly **EG_{facility,y}** data is crosschecked with the JMR & share certificate^{/P3/}. As per Power Purchase Agreement (PPA), the same net generation data provided in the monthly share certificate is used for billing. Hence the data is also cross-checked with the monthly electricity invoices^{/P7/} and found to be correct. Since the data considered for ER calculation is same as the data used for billing, the data considered is appropriate.

As mentioned in the VCS Project Description, the calibration is not within the control of project proponent as it is the responsibility of respective state DISCOM. It is also the minimum requirement as per host country rules based on the Central Electricity Authority (CEA) notification on 17-March-2006, that the calibration of the billing meters is atleast once in 5 years. Hence as no clear frequency was established by the state monitoring agencies, using the criteria as per CEA regulations, the calibration validity was assessed and the requirements were fulfilled as per information indicated below:

The calibration details of the project energy meters are as follows:

OJWEPL

Meter	Meter Number	Accuracy class	1 st calibration		2 nd Calibration*	
			Calibration date	Calibration due date	Calibration date	Calibration due date
GSS Main Meter	RJB80790	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020
GSS Check Meter	RJB80791	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020
PSS Main Meter 1	RJB78198	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020
PSS Check meter 1	RJB78200	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020
PSS Main Meter 2	RJB78201	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020
PSS Check meter 2	RJB78203	0.2s	29-March-2013	28-March-2018	13-Jan-2015	12-Jan-2020

**even though earlier calibration was valid, the second calibration was done by the state DISCOM*

ORPPL

Meter	Meter Number	Accuracy class	1 st calibration	
			Calibration date	Calibration due date
GSS Main Meter	ASH13815	0.2s	03-July-2012	02-July-2017
GSS Check meter	ASH13816	0.2s	03-July-2012	02-July-2017

All the calibration dates, meter number and accuracy are verified from the calibration reports^{/P4/} and found to be correct. The meter numbers & accuracy class of energy meters are reconfirmed during site visit. The monitoring period falls within 5 years of the initial calibration date. Hence, the calibration done for the energy meters is valid for throughout the monitoring period.

The accuracy class of energy meters installed in the project is 0.2s which is more accuracy class than the minimum accuracy class mentioned in the validated VCS PD ie, 0.5s. Hence, the accuracy of energy meters installed is found to be OK.

The validation team conclude that the evidence used to determine the emission reduction is of sufficient quantity and appropriate quality. Hence the emission reduction calculated for the monitoring period is accurate.

4.4 Non-Permanence Risk Analysis

Not applicable for non-AFOLU projects.

5 VERIFICATION CONCLUSION

EPIC Sustainability Services Private Limited has been engaged by Orange Renewable Power Private Limited to perform the first periodic verification of the VCS project “Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited” for the period from 31-March-2013 to 31-March-2015.

The verification was based on the validated PD, the baseline and monitoring methodology, validation reports, emission reduction spread sheets and other supporting documents made available to EPIC verification team by the project participant. The management of project proponents are 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-March-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 VCS Validation and Verification manual Version 3.1 and VCS Standard 3.5. As a result of the verification, the verification team confirms that for the reporting period:

- the project is implemented as described in the validated PD except the deviations mentioned in section 2.2.2 of MR,
- the monitoring plan is in accordance with the approved monitoring methodology applied by the project activity except the deviation mentioned in section 2.2.2 of the MR.
- the deviations in the project deception & monitoring plan are not significant which does not impact applicability of methodology, baseline and addtionality of the project
- the monitoring has been carried out in accordance with the validated PD version 2.0 dated 25-March-2015.

- the monitoring aspects (i.e. additional monitoring parameters, monitoring frequency and calibration frequency) were 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
- the GHG emission reductions achieved were calculated correctly on the basis of approved monitoring methodology.

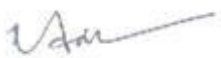
We have verified that the information included in the final monitoring report (version 2.0, dated 04-November-2015) was correct and that the emission reductions achieved had been determined correctly. In our opinion, the GHG emission reductions for the period from 31-March-2013 to 31-March-2015 stated in the latest revised monitoring report (version 2.0, dated 04-November-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 project's GHG emissions and resulting GHG emission reductions reported, and, to the valid and validated project baseline and monitoring documents. We confirm the following:

Verification period: From 31-March-2013 to 31-March-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	82,991	0	0	82,991
Year 2014	120,566	0	0	120,566
Year 2015	24,054	0	0	24,054
Total	227,611	0	0	227,611

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

APPENDIX I: RESOLUTION OF CARS & CLS

CAR/CL		Observation (CAR/CL)	Summary of project owner response	Verification team conclusion
CAR	01	MR-Cover Page: The Report ID number & Project ID number is not mentioned	The Report ID and Project ID has been updated in the revise MR page number 1.	Report ID and Project ID number have been included now. CAR-01 is closed
CAR	02	MR: The monitoring period is not mention consistently throughout the monitoring report. Please correct the anomaly	The monitoring period in the MR has been corrected to “31.03.2013 to 31.03.2015” throughout the MR.	The monitoring period is now made as 31-March-2013 to 31-March-2015 consistently throughout MR. CAR-02 is closed
CAR	03	MR-Section 3.2: It is mentioned that ‘Quantity of net electricity supplied to the grid during the year y’ will be sourced from JMR. However Pratapgarh site JMR contains only the bulk meter reading which includes non-project WTGs also. Mention clearly that how the data will be measured for the project WTGs only.	As correctly pointed out by the DOE, JMR contains electricity supplied by “Project WTGs” and “Non-Project WTGs” as well. For this purpose the Developer (ReGen & Suzlon for ORPPL & OJWEPL respectively) calculates the share of electricity by Project WTGs and provides a generation Certificate. This certificate is used to raise invoice to the Discom. The method to calculate the electricity share by “Project WTGs” has been elaborated in section 3.2 and 3.3 of the revised Monitoring Report.	The share certificate prepared by project developer is now included as source of ‘Quantity of net electricity supplied to the grid during the year y’ along with the JMR based on which the share certificate is prepared. Also, the apportioning procedure of net electricity is mentioned in the MR now. The revised details are in line with the site actual condition. However, these details are not clearly explained in the validated PD. Hence, the PP has explained the same in the section 2.2.2 of MR as deviation from project

				description which is validated and found the deviation does not affect applicability of methodology, baseline and addtionality of the project. CAR-03 is closed
CAR	04	MR-Section 3.2: It is mentioned that the bulk meter is installed at 220kV substation. However as verified form site, at Pratapgarh site, the metering is done at 132kV substation and for the Jaisalmar site it is done at 400 kV substation.	The typo error of 220 kVA for the Substation has been corrected with specific and exact specification in the revised monitoring report. The Substation for ORPPL is a 132KV and OJWEPL is 400kV. The same is now reflected in the section 3.3 of the MR.	The details of substation in which the bulk meters are installed are now modified in the MR. This is as per actual site condition. However, in the validated PD also the substation details are wrongly mentioned as 220 kV substation as location of bulk meter. Hence, PP has explained the same in section 2.2.2 of MR as deviation from project description. The same is validated and found that the deviation does not affect applicability of methodology, baseline and addtionality of the project. CAR-04 is closed
CAR	05	MR-Section 3.2: It is mentioned that the EG facility,y will be calculated from import, export & transmission loss. However as verified form site, EG facility,y calculation does not involve estimation of transmission loss separately.	The transmission loss is nowhere separately accounted. The billing is based on the export at Government Substation which already accounts all losses. The detailed method of calculation of Net Electricity generated from the	The calculation method of EG facility,y is now modified based on the actual procedure for calculation of net energy supplied for the billing purpose.

			project is described under section 3.3 of the revised MR.	CAR-05 is closed.
CAR	06	MR-Section 3.2: The following are missing in the table - Type of the energy meters used - Serial Number of the Energy meter - Calibration details of the energy meter	The details of energy meters as per the requirement has been included in the revised MR. It now has details of meter type, serial number and calibration.	The meter type, serial number and calibration details are now rightly included in the section 3.2 of MR. CAR-06 is closed.
CAR	07	MR-Section 3.3: Apportioning procedure for Energy generation of project WTGs is not given.	The section 3.3 of the revised MR has been updated with the method used for apportioning of electricity share from the project activity out the bulk meter reading at Government Substation JMR using the PSS/controller reading share.	The apportioning procedure for energy generation of project WTGs are now explained in the section 3.3 of MR. The same is cross verified by recalculating the final values from PSS/controller & GSS readings and found to be correct. The same is confirmed during the interview with the DISCOM personnel. CAR-07 is closed
CAR	08	MR-Section 3.3: In the metering diagram the following mistakes were found: - WTG locations for both the location is mentioned wrongly - For Pratapgarh site, it is mentioned first metering point is mentioned as DP yard meters. However as per actual site condition, there is no energy meters installed at DP yard.	The diagrams in the section 3.3 of the revised MR have been changed to include the correct location of WTGs and metering points.	The mistakes in the metering diagram are now rectified. CAR-08 is closed
CAR	09	MR-Section 4.1: - Baseline emission calculation is not provided - Units for the energy generations are	The baseline emission calculations have been included in the section 4.1 of the revised MR along with units for	Baseline emission calculation is now provided in the section 4.1 of MR

		not mentioned.	values wherever applicable.	Units for the energy generation is now provided in the MR. CAR-09 is closed
CAR	10	ER Calculation Sheet: Monthly net electricity export values mentioned in the ER calculation are not consistent with the respective JMR values.	The JMR has to be seen along with the electricity share certificate provided by the O&M contractor (who is also a part of PPA and authorised to provide share certificate of electricity to the project. The method which is adopted to apportion the electricity is described in the revised MR section 3.3 and the same calculation is included in the revised ER spread sheet as well.	Now the share certificate along with JMR is provided for verification. The electricity export & import values given in the ER calculation sheet is now consistent with the values calculated in the share certificate. CAR-10 is closed.
CL	01	MR-Section 4.4: Actual emission reduction achieved during the monitoring period is 9.63% more than the estimated emission reduction in the VCS-PD. Please justify the same.	The section 4.4 of the revised MR has been updated with justification of increase in emission reductions from the one as expected in VCS-PD. It is to be noted that the increase in generation has happened due to the increase in generation from the expected PLF in the PD. It is to be understood that the PLF increase is within the limits of sensitivity and such variation in PLF can be expected because PLF is estimated for the lifetime of the project and some years can be definitely favourable.	After the correction in the generation, the difference between emission reduction achieved and estimated value comes to 10.48%. This increase in emission reduction achieved due to increase in energy generation during the monitoring period. As checked with the O&M operator, the energy generation during the monitoring period is slightly higher due to the increase wind flow days in the project area. It is also noticed from the validated PD that the IRR will reach the benchmark only when the generation increase to 29.90% for OJWPL and 31.6% for ORPPL from the estimated value. The

				energy generation during the current monitoring period is only 10.48% higher than the estimated value in the PD and hence the addtionality of the project is still valid. Hence this increase in emission reduction is acceptable. CL-01 is closed
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