

VALIDATION REPORT: Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited



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Summary:

The validation team assigned by the DOE (TÜV Rheinland (China) Ltd.), here after called TRC, is been assigned by “Orange Renewable Power Private Limited” to perform the validation of their project “Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited”. The validation was performed on the basis of VCS Guidelines/ VCSA Rules. The scope of the validation is defined as an independent and objective review of the VCS project description, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against VCS Standard, version 3.5 /B01/.

The report is based on the assessment of the VCS project description (VCS PD), document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, site visit, and stakeholder interviews, review of the applicable methodology and its underlying formulae and calculations.

Validation methodology and process

The validation has been performed as described in the VCS Validation Verification Manual version 03.1 and constitutes the following steps:

- Desk review of the VCS PD and the relevant documents
- On-site assessment (11/03/2015)
- Issuance of Validation Report & Validation Representation

The project correctly applies the baseline and monitoring methodology ACM 0002 of version 16.0, “Grid-connected electricity generation from renewable sources”.

The project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards “India”.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is TRC’s

opinion that the project participants are able to implement the monitoring plan.

The project uses wind energy to generate clean electricity which is fed into the national electricity grid. Thus the project activity result in reductions of greenhouse gas (GHG) emissions those are real, measurable and give long-term benefits to the mitigation of climate change.

The total emission reductions from the project are estimated to be 1,028,700 t of CO₂e over a 10 year crediting period, averaging 102,870 t of CO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The validation protocol describes a total of 11 findings which include:

9 Corrective Action Requests (CARs);

2 Clarification Requests (CLs);

0 Forward Action Requests (FARs);

All findings in CARs/CLs have been closed satisfactorily. There are no restrictions of uncertainties related to this validation.

TRC concludes that the VCS Project Activity “Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited”, as described in the VCS PD (version 02, date 25/03/2015) /P02/, meets all relevant requirements of VCS Standard, version 3.5

The selected baseline and monitoring methodology (ACM 0002 of version 16.0) is applicable to the project and correctly applied. The TRC therefore requests the registration of the project as a VCS project activity.

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1 INTRODUCTION

1.1 Objective

The purpose of a validation is to have an independent, professional, ethical and fair third party assessment of the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant VCS and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Verified Carbon Units (VCUs).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS Project Description (VCS PD). The VCS PD is reviewed against the relevant criteria (see above) and decisions by the VCS Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed (latest version) a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUs.

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

While carrying out the validation, TRC determines if the project activity complies with the requirements of VCS guidelines and also assesses the claims and assumptions made in the VCS PD without limitation on the information provided by the project participants.

The scope of the validation is:

- To apply TRC's own quality management system integrated with the Validation and Verification Manual along with the guidance provided by the VCS board to determine if the project activity meets all applicable VCS requirements, including those specified in the VCS standard, relevant methodologies, tools and guidelines and processing the same with VCS Program Guide;
- Asses the accuracy, conservativeness, relevance, completeness, consistency and transparency of the information provided by the project participants;
- Determine whether information provided by the project participants are reliable and credible;
- Present information in the form of validation report in a factual, neutral, coherent manner and document all assumptions, provide references to the background material and identify changes made to the documentation;
- Base the findings and conclusions on objective evidence and conduct all validation in accordance with VCS rules and procedures;

- Apply consistent validation criteria in providing expert judgments to the requirements of applicable approved methodologies, tools and also cross check the same with projects of similar characteristics, technology, time period and region; and
- Safeguard the confidentiality of all information's obtained or created during validation.

Where sampling is involved, the standard for sampling and surveys are applied.

1.3 Level of Assurance

The validation report is based on VCS PD, supporting documents (refer below section 2.2) made available to the validation team and information collected through performing interviews and document review. The validation opinion is assured provided the credibility of all above.

1.4 Summary Description of the Project

The project activity is a Grid connected wind power project (=Greenfield project). The project activity is a 59.4 MW (39.9 MW in Bhesada & 19.5 MW in Dolat) bundled wind power project consisting of 32 Wind Turbine Generators (WTGs). 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 promoters of this bundled project. The purpose of the project activity is to generate clean electricity with utilization of wind energy. The first project in the current bundle project is 39.9 MW Wind Power Project near village Bhesada, close to the city of Jaisalmer in state of Rajasthan, hereafter call "Project 1". It is developed by "Orange Jaisalmer Wind Energy Private Limited" (OJWEPL). It consists of 19 machines of 2.1 MW class Suzlon S88 make. The other project in the bundle is 19.5 MW wind Power Project located near village Dalot, close to the city of Pratapgarh in state of Rajasthan, here after called "Project 2". It is developed by "Orange Renewable Power Private Limited" (ORPPL). It consists of 13 machines of 1.5 MW class ReGen V82 make.

Currently all the WTGs have been commissioned. The purpose of 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 are mentioned in the PDD has been checked during the site visit and through the website /B09/.

The estimated electricity supplied to the grid from the project activity is 105.3355 GWh per year. The estimated GHG emission reduction is 1,028,700 tCO₂e for the ten year crediting period.

The technology to be applied is deemed to be current good practice and is not expected to be replaced within the crediting period.

The operational lifetime of the project has been determined (by WTG manufacturer) as 20 years which corresponds to the standard design life time of a wind turbines and has been verified from the technical specification provided by the WTG supplier /P16/. The operation and maintenance would be done by the respective suppliers of the WTGs. The project participant has opted for a crediting period of 10 years renewable twice.

Based on the information furnished by the project participants, no diversion of ODA contributes to the financing of the project /P23/.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation consists of the following four phases:

- I A desk review of the project design documents
 - A review of data and information;
 - Cross checking between information provided in VCS PD with all necessary means without limitations to the information provided by the project proponent;
- II On-site visit and follow-up interviews with project stakeholders
 - Interviews with relevant stakeholders in host country with personnel's having knowledge with the project development via telephone, email or direct on-site visits;
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
- III Reference to available information's relating to projects or technologies similar projects under validation and review based on the approved methodology being applied of the appropriateness of formulae and accuracy of calculations.
- IV The resolution of outstanding issues and the issuance of the final validation report & opinion and Validation representation.

The following sections outline each step in more detail.

2.2 Document Review

The following table outlines the documentation reviewed during the validation:

Ref no.	Reference Document
/P01/	VCS PD, "Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited" version 01, dated 01/01/2015
/P02/	VCS PD [final version], "Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited" version 02, dated 25/03/2015
/P03/	Spread sheet for investment analysis and sensitivity analysis corresponds to /P01/
/P04/	Spread sheet for investment analysis and sensitivity analysis corresponds to /P02/

/P05/	Spreadsheet for calculation of grid emission factor and emission reduction
/P06/	Copy of EPC contract between PP and EPC contractor
/P07/	Copy of Commissioning certificates of WTGs of the project activity as a proof of start date of commercial operation (=VCS start date)
/P08/	Copy of DPR prepared by SBI Capital Markets Limited (SBI CAPS) - SBICAP is a wholly owned subsidiary and the Investment Banking arm of State Bank of India (SBI), the largest commercial bank in India dated 01/10/2012.
/P09/	Copy of Power Purchase Agreements signed with the power distribution company dated 21/03/2013
/P10/	Sample copies of monthly generation certificates /invoices
/P11/	Evidences against all techno-economic input data and assumptions used for each sub-bundle of the project activity (Cp section 2.5 of the PD)
/P12/	Relevant proofs of local stakeholder consultation process. ☐ Copy of Minutes of meeting of the local stakeholders consultation meeting ☐ Copy of Attendance sheet of the meeting of the local stakeholders consultation ☐ Photographs of the local stakeholders consultation meeting ☐ Stakeholder meeting feedback form ☐ Copy of Media used
/P13/	1. Operational and management structure for implementation and monitoring (monitoring manual) of project activity (Organisation chart concerns to VCS Monitoring). 2. Actual Operation and Maintenance agreements
/P14/	Statutory clearances
/P15/	Company registration certificate.
/P16/	Technical specifications for WTGs (including proof for capacity, Make of WTG and life time provided by the equipment manufacturer).
/P17/	Plant Lay out drawing indicating unique location of each of the WTGs.
/P18/	Key photo graphs of the current site activities along with photographs of the name plates of generating equipments.
/P19/	Single line diagram for electricity generation and supply to grid.
/P20/	Declaration from the PP that the project activity, remain under the limit of small scale project activity and the technology would not change during the entire crediting period. Also the same declarations states that PP stating no intention

	of creating and trading of another form of environmental credits out of VERs would be created from this given project (Cp para 1.13 of VCS PD template)
/P21/	Right of Use: Copy of Commissioning certificates of WTGs of the project activity as a proof of start date of commercial operation (=VCS start date)
/P22/	CA certificate for the actual project costing
/P23/	Declaration from PP for no ODA
/P24/	Insurance documents
/P25/	Board decision date for the investment in the project activity for each sub bundle project activity
/P26/	Authorization Letter to Orange Renewable Power Private Limited to act as authorized project proponent in the process of VCS
/P27/	Indian Wind Power Directory by CECL

Background investigation and other referred documents/websites:

Ref no.	Reference Document
/B01/	VCS Standard, version 3.5 VCS Program guide, version 3.5 VCS Program definitions, version, 3.5 VCS Validation and verification manual, version 3.1 CDM Validation and Verification Standard, version 7.0. CDM project standard, version 7.0
/B02/	Approved CDM Baseline & Monitoring Methodology: ACM0002, version 16.0
/B03/	1. Glossary of CDM terms, version 08 2. Relevant CDM and PoA specific requirements (CDM M & P and decisions by the CMP and documents released by CDM EB) published on the UNFCCC CDM website 3. Tool for the demonstration and assessment of additionality, version 7.0.0 4. Guidelines on the assessment of investment analysis, Version 05
/B04/	VCS Registration and issuance process, version 3.6

/B05/	Websites used: 1. http://www.bcasonline.org/webadmin/SubTop/attachedfiles/RatesofIT.htm 2. http://www.freecurrencyrates.com/exchange-rate-history/EUR-INR/2006
/B06/	Tool to calculate the emission factor for an electricity system, Version: 04.0
/B07/	Carbon dioxide database version-10 published by Central Electricity Authority. http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
/B08/	http://envfor.nic.in/legis/eia/so1533.pdf - EIA notification from MoEF dated 14/09/2006. http://moef.nic.in/downloads/rules-and-regulations/3067.pdf - Amendment of EIA notification dated 01/12/ 2009
/B09/	Web research "Google Earth" for geo-coordinate
/B10/	recr.rajasthan.gov.in/TariffOrders/Order133.zip RECR tariff order dated 07/09/2012
/B11/	BPLR for 6 banks: State Bank of India - https://www.sbi.co.in/portal/web/interest-rates/benchmark-prime-lending-rate-historical-data Bank of Baroda - http://www.moneycontrol.com/stocks/stock_market/corp_notices.php?autono=542623 Oriental Bank of Commerce - https://www.obcindia.co.in/obcnew/site/inner.aspx?status=R1&menu_id=15 ICICI - http://www.theteamwork.com/articles/2016-1703-current-home-loan-interest-rates-icici-bank-limited.html Central Bank of India - https://www.centralbankofindia.co.in/Site/Interest.aspx HDFC Bank - http://www.theteamwork.com/articles/2016-1704-current-home-loan-interest-rates-hdfc-bank-limited.html

2.3 Interviews

TÜV Rheinland validation team carried out an on-site visit dated 11/03/2015 and performed interviews with the project representatives and stakeholders. The site visit was conducted to validate the accuracy and completeness of the project description as specified under VCS PD.

During the site visit, the validation team reviewed the available project activity designs, feasibility studies, documentation and comparison analysis with equivalent projects as appropriate.

Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

	Date	Name	Organization	Topic
/ii/	11/03/2015	Mr. Hardeep Singh	Site Engineer, Orange Renewable Power Private Limited	-PP's background -Investment decision -Public funding

<i>/ii/</i>	11/03/2015	Mr. Pradeep Khare	Manager, Orange Jaisalmer Wind Energy Private Limited	-Additionality issues -Double counting issues
<i>/iii/</i>	11/03/2015	Mr. Aditya Tripathi	Sr. Engineer, Suzlon Energy Limited	- Project design - Project implementation - Technical design - Monitoring plan
	11/03/2015	Mr. Arpan Sahu	Sr. Engineer, Suzlon Energy Limited	
<i>/iv/</i>	11/03/2015	Mr. Mohd Pathani	Sr. Engineer, ReGen Powertech Pvt Ltd,	
	11/03/2015	Mr. Bibin	Engineer, ReGen Powertech Pvt Ltd	
<i>/v/</i>	11/03/2015	Mr. Vamsi Krishna M	Sr. Manager, Kosher Climate India Pvt Ltd.	-Project design -Baseline identification -ER calculation -IRR Calculation -Additionality issues -Monitoring plan

Validation team considered the views obtained in these interviews while arriving at Validation Opinion.

2.4 Site Inspections

TÜV Rheinland validation team carried out an on-site visit dated 11/03/2015 and checked the project technical design and implementation. The site visit was conducted to validate the accuracy and completeness of the project description as specified under VCS PD. Validation team considered the views obtained in site observation while arriving at Validation Opinion.

2.5 Resolution of Findings

The objective of this phase of the validation is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customized for the project. The protocol shows in transparent manner criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a VCS project is expected to meet VCS requirements;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The validation findings are described and resolved in the Appendix I

Findings established during the validation can either be seen as a non-fulfillment of VCS criteria or where a risk to the fulfillment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- Mistakes have been made with a direct influence the ability of the project activity to achieve on project results like real, measurable, verifiable and additional emission reductions;
- VCS and/or methodology specific requirements have not been met; or
- There is a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

On total, 11 findings are identified which consist 9 Corrective Action Requests (CAR) and 2 Clarification Request (CL). Please refer Appendix I for the findings.

2.6 Forward Action Requests

No forward action request (FAR) is raised during validation of the project activity.

3 VALIDATION FINDINGS

3.1 Project Details

Project type, technologies and measures implemented, and eligibility of the project:

The project activity is a Grid connected wind power project (=Greenfield project). The project activity is a 59.4 MW (39.9 MW in Bhesada & 19.5 MW in Dolat) bundled wind power project consisting of 32 Wind Turbine Generators (WTGs). The purpose of 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 technical specification of the project activity is verified from the site visit and the supporting documents /P16/.

The project is bundled project activity, consist of two sub-bundles.

- The project technology is not expected to undergo any change within the crediting period; the same is confirmed by validation team during interview with project proponent for this project activity.
- The verified details of key equipment implemented under the project activity are confirmed through document review of commissioning certificate /P07/:

Project proponent and other entities involved in the project:

Project proponents involved in the project are Orange Jaisalmer Wind Energy Private Limited (for 39.9 MW) and Orange Renewable Power Private Limited (for 19.5 MW). OJWEPL has authorized

ORPPL for all carbon related activities and communication. Authorization letter /P26/ in this regard has been submitted.

No other entity is involved in this project.

Project start date:

The WTGs of the project activity were commissioned on 31/03/2013 /P07/. Since this is the date, when the project began generating GHG emission reductions, which is considered as project starting date as per section 3.7.1 of VCS Standard version 3.5; the same is verified through commissioning report /P07/ and found to be correct.

Project crediting period:

The project crediting period is of 10 years which can be renewed for 2 times. The starting date of crediting period is 31/03/2013 /P07/. This is appropriate and in line with section 3.8.1 of VCS standard, version 3.5

Project scale and estimated GHG emission reductions or removals:

The project scale category described in VCS PD section 1.7 /P02/ is 'Projects'. This is found to be appropriate as the estimated emission reduction of the project is 102,870 tCO₂ which is less than 300,000 tonnes of CO₂e per year and hence in line with section 3.9.1 of Project standard.

Project location:

The first project in the current bundle project is a 39.9 MW Wind power project near village Bhesada, close to the city of Jaisalmer in state of Rajasthan. It consists of 19 machines of 2.1 MW class Suzlon S88 make. The other project in the bundle is a 19.5 MW wind Power Project located near village Dalot, close to the city of Pratapgarh in state of Rajasthan. It consists of 13 machines of 1.5 MW class ReGen V82 make.

The location of the project activity is checked during site visit and found to be correct.

Conditions prior to project initiation:

In pre-project scenario, there was no electricity generation. This is confirmed through interview with the PP.

Project compliance with applicable laws, statutes and other regulatory frameworks:

The project proponent has obtained the necessary approvals from the applicable statutory bodies.

Ownership and other programs:

- **Right of use:** Commissioning certificates of wind turbines /P07/ establishing ownership rights was reviewed by validation team as a proof of title in respect of rights of use accorded to the project proponent and it is found to be acceptable.

- **Emissions trading programs and other binding limits:** The project proponent is not part of any emission trading program. The respective websites are checked and found that the project is not applied in any emission trading program. Also a declaration letter from PP has been submitted which confirms the same /P20/. Hence no double counting applies for this project as per declarations provided by PP.
- **Other forms of environmental credit sought or received:** The declaration given by the PP mentions that project has not created any other environmental credits and the PP will not seek any form of environmental credit in future /P20/.
- **Participation under other GHG programs:** The project has not applied under any other GHG programs. This is confirmed from the declaration letter provided by PP that mentions that project has not created any other environmental Credits /P20/.
- **Rejection by other GHG programs:** This project activity is not rejected by any other GHG Programs. The declaration letter form PP confirms the same /P20/.

Additional information relevant to the project

- **Eligibility criteria for grouped projects:** This is not a group project activity. Hence no eligibility conditions were setup.
- **Leakage management for AFOLU projects:** This is not an AFOLU project activity.
- **Commercially sensitive information:** There is no commercially sensitive information in this project activity. The same is confirmed in the section 1.13 of the VCS PD/P02/.

The processes undertaken by the validation team to validate the accuracy and completeness of the project description include conducting a physical site inspection, sampling, reviewing available designs and feasibility studies, conducting comparison analysis with equivalent projects.

The validation team hereby confirms that the project description in the final VCS-PD is accurate and complete in all respects.

3.2 Application of Methodology

3.2.1 Title and Reference

Title of the Methodology	ACM0002 Version 16, "Grid-connected electricity generation from renewable sources"
Reference of the Methodology	Category: Approved Large Scale Methodology: http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83

Tools Used	Tool to calculate the emission factor for an electricity system (Version 04/EB 75 Annex 15)
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The methodology and tools version used is the latest version available in the UNFCCC website and hence it is valid at the time of validation of the project activity.

3.2.2 Applicability

Approved baseline and monitoring methodology ACM0002 “Grid-connected electricity generation from renewable sources” (version 16.0) has been applied for the proposed project activity which also uses the “Tool to calculate the emission factor for electricity an electricity system” version 04 /B02/. At the time of validation of the project, methodology (ACM0002) version 16 applied is the latest one.

The validation team determined the applicability of methodology ACM0002 (version 16) as follows:

Applicability criteria of the methodology (ACM 0002), Version 16.0	Criteria fulfilled	Determination by the validation team
This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	☒ Yes ☐ No	The project activity is a new Wind power project of rated installed capacity 59.4 MW and has been checked from the document review of technical specification of the WTGs /P16/ and commissioning certificates /P07/, hence validation team confirms that the project activity is a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) as verified during OSV. Furthermore, the electricity generated by the project activity will be supplied to state electricity grid which is part of electricity generation system and comes under NEWNE grid of India as per the delineation of CEA /B07/ and this has been checked from the Power Purchase Agreement /P09/ signed between the PP and state electricity which explicitly mention that the generated electricity from the project activity will be sold to the electricity board.
The project activity may include renewable energy power plant/unit of one of the following	☒ Yes	The project activity is a Greenfield power plant, the same has been checked from the

Applicability criteria of the methodology (ACM 0002), Version 16.0	Criteria fulfilled	Determination by the validation team
types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	☐ No	document review of technical specification of the WTGs /P16/ and commissioning certificate /P07/ and from the onsite visit.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	☐ Yes ☒ No	The project activity is a Greenfield power plant, the same has been checked from the document review of technical specification of the WTGs /P16/, commissioning certificate /P07/ and from the onsite visit. Hence this paragraph of methodology is not applicable for the subject project.
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m² ; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m² ; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m² , all of the	☐ Yes ☒ No	The present project activity is not a hydro power plant; hence this paragraph is not applicable for the subject project case.

Applicability criteria of the methodology (ACM 0002), Version 16.0	Criteria fulfilled	Determination by the validation team
following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m² ; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.		
In the case of integrated hydro power projects, project proponent shall:	☐ Yes ☒ No	The present project activity is not a hydro power plant; hence this paragraph is not applicable for the subject project case.
Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or	☐ Yes ☒ No	The present project activity is not a hydro power plant; hence this paragraph is not applicable for the subject project case.
Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of	☐ Yes ☒ No	The present project activity is not a hydro power plant; hence this paragraph is not applicable for the subject project case.

Applicability criteria of the methodology (ACM 0002), Version 16.0	Criteria fulfilled	Determination by the validation team
CDM project activity.		
The methodology is not applicable to: (e) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (f) Biomass fired power plants/units.	☐ Yes ☒ No	The subject project is a green-field grid connected Wind power project as verified from the provided documents /P06/, /P07/, /P10/. The present project activity neither involve switching from fossil fuels to renewable energy sources or biomass fired power plant or a hydro power plant, hence this paragraph is not applicable for the subject project case.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	☐ Yes ☒ No	The subject project is a green-field grid connected Wind power project as verified from the provided documents /P06/, /P07/, /P10/. Validation team confirms that it is not a case of retrofits, replacements or capacity addition; hence this paragraph is not applicable for the subject project case.

Thus the validation team confirms that the project participant correctly applied the approved methodology /B02/ for the project activity.

3.2.3 Project Boundary

The geographical and physical project boundary of the project activity was determined by the validation team during the on-site assessment. The coordinates were correctly documented in the VCS PD. The sources and sinks of greenhouse gas identified in the PD are deemed to be appropriate. The coordinates were confirmed by the validation team through Google earth and found OK.

Emissions	GHGs involved	Description
Baseline emissions	CO2	Major emission source, which is emitted from the electricity generation by fossil fuel-fired power plants connected to the NEWNE grid.

Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind power plant) project.
Leakage	N/A	As per the applied methodology /B02/, leakage is zero.

In summary, the project boundary was correctly identified in accordance with the methodology ACM 0002 (version16.0). All greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed project activity have been appropriately addressed in the PD.

The identified project boundary and selected sources of emissions are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, with respect to the methodology applied.

3.2.4 *Baseline Scenario*

As per ACM0002 version 16.0, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

Since the project activity is the installation of a new grid connected wind project, the validation team confirms that the proposed project activity meets the above requirement. Therefore, the baseline scenario as prescribed in the ACM0002 (version 16.0) is applicable to the proposed project activity. Hence the validation team confirms that the proposed project activity meets the methodological requirement. Therefore, the identified baseline scenario is applicable to the proposed project activity.

All the assumption and data used by the project participants are listed in the VCS PD and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the VCS PD. Assumptions and data used in the identification of the baseline scenario are justified appropriately supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the VCS PD.

The approved baseline methodology has been correctly applied to identify a realistic and credible baseline scenario, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed VCS project activity.

3.2.5 Additionality

As mentioned in the ACM0002 version 16.0, Additionality tool “**Demonstration and Assessment of Additionality**” version 07 /B03/ is used for the justification of additionality of the concerned project activity. Since the baseline was predefined in the selected methodology, no further analysis was done in identifying the alternatives. For the project activity, NEWNE Grid is the baseline.

The project has proved additionality based on the following

- Investment analysis
- Common practice analysis

Investment decision: The validation team has reviewed the respective board decisions /P25/ for investing in Project and securing carbon credits and considered appropriate for serious consideration of seeking carbon credit. The investment decision dates for both the sub-bundle project is 03/10/2012.

PP has demonstrated that the project activity is not financially viable in the absence of the revenue from the carbon credits. In order to verify the claim, the validation team analysed the financials submitted by the PP by verifying the following:

CHOICE OF APPROACH:

Project developer had demonstrated that the financial returns of the proposed project activity would be unviable and insufficient to justify the required investment. The PP has demonstrated the financial unattractiveness of the project activity through the benchmark approach in the investment analysis. Since the project activity generates revenue through generation sale of electricity units, simple cost analysis is not appropriate. Investment comparison analysis is used only in situations wherein the options - baseline and the project activity can be compared. For this project activity, the baseline is electricity supply through the electricity grid which is not an investment option for the PP and therefore investment comparison analysis is not appropriate. The benchmark approach is suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest. This is applicable to the project case and hence benchmark analysis (Option III) is considered appropriate. This is in accordance with the para 19 of the "Guidelines on the Assessment of Investment Analysis" (version 05, EB62 Annex 5), hereinafter referred to in this section as 'Guidelines' that states, *"If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate."*

PP has chosen the project IRR as the financial indicator for the analysis which is acceptable as per the guidance. Considering the fact that the project is financed by a mix of debt and equity and that guidance 12 of Annex 5, EB 62 permit the use of project IRR as one of the financial indicators to demonstrate additionality, project IRR has been considered as appropriate financial indicator for the project type and decision making context.

Benchmark selection:

The project developer has chosen the Prime Lending Rate (PLR), which is the commercial lending rate, as the benchmark. As per guidance 12 of Annex 5, EB 62, "Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR". PLR represents the commercial lending rate of banks. Therefore, the PLR as benchmark conforms to guidance 12 of Annex 5, EB 62. Moreover, since the PLR represents the standard rate in the market, it also conforms to guidance 13 of Annex 5, EB 62. PP has considered 6 banks of the host country and compared the PLRs of all the 6 banks at the time of investment decision. This complies with the requirement of para 6 of annex 5 of EB 62. Out of 6 PLRs /B11/ available, PP has chosen 14.50 % as benchmark, which is the minimum commercial lending rate. The PLR considered is of State Bank of India which is a nationalized bank and also highly reputed. Therefore, the Validation Team concludes that the benchmark selected by the project developer is suitable for the financial indicator selected and is conservative. Therefore, the selected benchmark is appropriate.

Input parameters:

TUV Rheinland validated the timings of investment decision taken by the PP and the consistency and appropriateness of the input values with the timing of investment decision. It was found that this was consistent with the para 19 of the "Guidelines on the Assessment of Investment Analysis" (version 05, EB62 Annex 5), hereinafter referred to in this section as 'Guidelines' that states, "Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations".

The detailed explanation on input values considered with justification has been provided below.

Consistency of the value:		Values are consistent in the VCS PD, investment analysis, ER sheet	
Validity of input value at the time of investment decision making:		<i>Values were available at the time of investment decision i.e.</i> 1. 03/10/2012 for Orange Renewable Power Private Limited 2. 03/10/2012 for Orange Jaisalmer Wind Energy Private Limited	
Parameter:	Value applied for the IRR calculation:	Source of the value:	Justification by the validation team according to §127, 128 of VVS version (07.0) (cross checking and comparison as applicable)
Capacity of WTG (MW) & number	1. 39.9MW in Bhesada 2. 19.5 MW in Dolat	DPR	The value is based on the "SBICAPS DPR" /P08/. This is further cross checked with commissioning certificates /P07/ and found correct. Hence, the value is correct and appropriate for the project.

Project Life (Year)	20 years	DPR	The value considered by PP is deemed appropriate for the project. This is verified from DPR /P08/. This also confirms to Section II option (a) of “Tool to determine the remaining lifetime of equipment.” (Version 01). The financial projections have been done for a maximum period of 20 years /P16/ in accordance with para 3 of Annex 5 of EB 62, which states, “In general a minimum period of 10 years and a maximum of 20 years will be appropriate” /B03/.									
PLF (%)	20 % for 39.5 MW project and 22 % for 19.9 MW project	DPR submitted to bank	The PLF available in the DPR /P08/ from PP to banks is considered for the investment analysis and baseline calculation. The PLF considered is in compliance with the para 3(a) of <i>Guidelines for the reporting and validation of plant load factors</i>, version 01 is used for ex ante estimation of emission reduction. Validation team has also considered the RERC Tariff Order dated 07/09/2012 /B10/ which refers the PLF of 21 % for Jaisalmer district means 39.5 MW project which is close to considered PLF of 20%. Also the RERC Tariff Order dated 07/09/2012 refers the PLF of 20% for other districts means 19.9 MW project which is close to considered PLF of 22%. Project is still additional if we take the PLF given in the tariff order. Also the PLF is subject to sensitivity analysis (+10%) where IRR does not cross the benchmark and the cross over point PLF is <table><tr><th>PP/s</th><th>Cross over point</th><th>PLF value</th></tr><tr><td>ORPPL</td><td>31.60 %</td><td>28.95%</td></tr><tr><td>OJWE PL</td><td>29.90 %</td><td>25.98%</td></tr></table> which is highly unrealistic.	PP/s	Cross over point	PLF value	ORPPL	31.60 %	28.95%	OJWE PL	29.90 %	25.98%
PP/s	Cross over point	PLF value										
ORPPL	31.60 %	28.95%										
OJWE PL	29.90 %	25.98%										
Generation (Lakh MWh)	699.05 (for 39.5 MW project) And 375.80 (for 19.9 MW	-	The validation team has carried out independent calculation of generation for each PP at considered PLF (20 % for 39.5 MW project and 22 % for 19.9 MW project) and found correct.									

	project)		
Tariff Rs./kWh	5.18 (for 39.5 MW project) And 5.44 (for 19.9 MW project)	DPR	The tariff is based on the DPR /P08/ dated 01/10/2012 and is available to PP on the date of board decision. The tariff is crosschecked with RERC Tariff Order dated 07/09/2012 /B10/ and with the signed PPA /P09/ and found same as considered. Moreover the tariff is subject to sensitivity analysis (+10%) where IRR does not cross the benchmark. The cross over point for the tariff for OJWEPL is 6.73 (Rs/kWh) (variation of 29.90%) and for ORPPL is 7.16 (Rs/kWh) (variation of 31.60%) which is highly impossible as the considered tariff for investment analysis is same to the actual tariff. Hence further increase in tariff is unrealistic.
Total Project Cost (Rs. Lakh)	22495.21 (for 39.5 MW project) And 13042 (for 19.9 MW project)	DPR	The value is based on the SBICAPS DPR /P08/ dated 01/10/2012 which is been verified by the validator. Hence the value is correct and appropriate for the project. The project cost is also compared with the actual cost /P22/. There is a negotiation in the project cost of OJWEPL and PP has received discount on the project cost (~2% of project cost), however, the project cost of ORPPL has a slight increase. The IRR was checked with actual parameters for each of the sub-bundles. The following are the IRR at actual condition. 1. Orange Jaisalmer Wind Energy Private Limited – 10.00% 2. Orange Renewable Power Private Limited – 9.57% Which is lower than the benchmark. Moreover the project cost is subject to sensitivity analysis (-10%) where IRR does not cross the benchmark. As the project is already commissioned there is no scope of decrease in project cost over the actual project cost incurred.
Debt : Equity Ratio	70:30 (for 39.5 MW project) And 68:32 (for 19.9 MW)	DPR	The debt:equity ratio is taken from DPR /P08/ and hence accepted. Validation team has also checked the same from RERC Tariff Order dated 07/09/2012 /B10/ i.e. 70:30 and found comparable.

	project)		
Operation & Maintenance Cost base year (Rs. Lakhs) (excluding Tax)	18.5 (for 39.5 MW project) And 12.9 (for 19.9 MW project)	DPR	The O & M cost is verified from SBICAPS DPR /P08/. The O&M is free for first two years of operation. The validation team have also cross check the operation and maintenance cost from the actual operation and maintenance agreement /P13-2/ and found the same.
% Annual Escalation in O&M	5.00	DPR	Escalation in O&M cost is based on SBICAPS DPR /P08/ which was available to the PP at the time of decision making (guidance 6 of Annex 5, EB 62). The validation team have also cross check the annual escalation from the actual operation and maintenance agreement /P13-2/ and found same.
Income tax	33.22	http://www.bcasonline.org/webadmin/SubTop/attachedfiles/RatesofIT.htm	The Income Tax rate considered for the project is 33.22 calculated based on 30% corporate tax, 7.5% surcharge and 3% education cess. MAT rate considered for the project is 19.39% calculated based on 18% MAT, 7.5% surcharge and 3% education cess. Validation team checked and found the rate to be correct and appropriate for this project activity.
Depreciation as per IT	10% for Building & Civil works 15% for Plant & Machinery	http://taxclubindia.com/UPLOAD/Income%20tax%20ready%20rechner%202011-12.pdf	The rate has been verified and found to be correct.
Book Depreciation Rate (%)	5.28 %	rerc.rajasthan.gov.in/TariffOrders/Order133.zip	Validation team confirmed the same from RERC Tariff Order dated 07/09/2012 /B10/ and found OK.
Interest rate (%)	12.50	DPR	Rate of interest was available at the time of investment decision /P11/. Also the validation team has verified the same from the RERC Tariff Order dated 07/09/2012 /B10/ and found comparable i.e. 12.30%.
Deration (%)	1.25% for years 6 th , 10 th , 14th and 18th	rerc.rajasthan.gov.in/TariffOrders/Order133.zip	The value is verified from RERC Tariff Order dated 07/09/2012 /B10/ and found OK.

Common Practice Analysis:

It has been assessed as per sub step 4 b of tool for demonstration and assessment of additionality. The generation of the wind project activity depends on region specific wind availability and the tariff regime prevalent in the region/state. In India, tariff determination for electricity generation, supply, distribution, transmission, wheeling, purchase and procurement of power is the responsibility of the individual State Electricity Regulatory Commissions. The investment climate and policies are not same across the country. Thus, the regulatory regime clearly differs from one state of India to another. Similarly, each state has its Renewable Energy Development Agency, with different policies for establishment, development and licensing procedures for renewable energy projects. Thus, in India, the regulatory environment for the power sector in general and renewable energy in particular is governed by the policies, regulations and tariff orders implemented at the state level. Thus the policies and tariff regime is consistent throughout the state of Rajasthan.

Since the project activity is located in the state of Rajasthan and exports power to the Rajasthan state grid, the selected geographical boundary of the state of Rajasthan is considered to be appropriate for common practice analysis.

All the wind power projects in private sector, with capacity of more than 15 MW size (comparable size) in state of Rajasthan were considered for common practice analysis. The wind projects set up under government sector were excluded since they have a different investment objective. TRC considers the selection of wind projects of 15 MW and above set up by a private developers for the common practice analysis as appropriate. It has been verified by TRC from the wind power directory /P27/, that the cumulative installed capacity of the individual wind projects with more than 15 MW in private sector is 1834 MW and this entire 1834 MW capacity is under CDM/VCS pipeline which has been verified from the UNFCCC website (web-links for all these projects are included in PDD under common practice analysis section)/VCS website. A list of these projects with CDM/VCS links has been included in section 2.5 of the PD and same has been verified by TRC. Hence it can be concluded that no other similar projects are available in state of Rajasthan, which needs to be considered for common practice analysis.

In conclusion, it is TRC's opinion that it has been correctly demonstrated that the project activity does not represent a common practice and thus the emission reductions achieved by the project are additional to any would happen in absence of the project.

From the above discussion it can be concluded that the project is not a business-as-usual scenario and thus additional.

3.2.6 Quantification of GHG Emission Reductions and Removals

The GHG emission reduction calculations are transparently documented and appropriate assumptions regarding the expected amount of electricity generated have been used to forecast emission reductions.

According to the applied formulae in the VCS PD /P02/, the emission reductions (ER_y) by the project activity during the crediting period is the difference between the baseline emissions (BE_y) and sum of emissions arising from leakage (LE_y) and project (PE_y), which is expressed as follows:

$$ER_y = BE_y - PE_y - LE_y$$

As per the applied methodology ACM 0002 version 16, the leakage and project emission are zero. The baseline emissions are equal to the emission reductions due to the project activity. According to the applied method, the baseline emissions are demonstrated in Section 3.1 of VCS PD and are calculated as follows:

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

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)

EF_{grid,CM,y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

EG_{PJ,y} is estimated as 105,355 MWh/year (average for the entire crediting period) as verified from the “DPR” /P15/.

So emission reduction is direct multiplication of quantity of net electricity supplied to the grid as a result of the implementation of the project activity in year y (MWh) and the grid emission factor.

The emissions reductions due to the project activity were estimated ex-ante to be 102,870 tCO₂e per year (Annual Average) during the crediting period in the VCS PD /P02/ and calculated as follows:

$$ER_y = BE_y = EG_{PJ,y} * EF_{grid,CM,y} = 105,355 \text{ MWh/year} * 0.9766 \text{ tCO}_2\text{e/MWh} = 102,870 \text{ tCO}_2\text{e}$$

In summary, the calculation of emission reductions was correctly demonstrated by the PP according to the methodology ACM0002 version 16.0 and its tool “Tool to calculate the emission factor for an electricity system” version 04.

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of emission reduction conservatively calculated to be 102,870 tCO₂e per year for the crediting period.

All assumptions and data used by the project participants are listed in the VCS PD and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PD. All values used in the PD are considered reasonable and conservative in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PD.

3.2.7 Methodology Deviations

No methodology deviations applied to this GHG project.

3.2.8 Monitoring Plan

The project monitoring plan is in compliance with the monitoring methodology ACM 0002 (version 16.0). It is DOE's opinion that the project participant is able to implement the monitoring plan.

Parameters determined ex-ante

The project adopts the ex-ante calculation of emission factor of the grid. The OM and BM are calculated as fixed factors for entire crediting period by choosing data vintage based on ex-ante data published by Central Electricity Authority: CO2 Emission Database CEA CO2 Baseline database Version 10 /B07/.

The parameters for determining the GHG emissions reductions have been clearly demonstrated in section 4.1 of the VCS PD /P02/. The combined margin emission factor for the NEWNE grid of India has been calculated to be 0.9766 tCO₂e / MWh.

The validation team has verified the value used against the sources and conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the parameters are real, measureable and conservative.

The validation team confirms that all relevant parameters have been sufficiently considered and the values of the parameters are real, measureable and conservative.

Parameters monitored ex-post

According to the methodology ACM 0002, version 16.0, following parameters are monitored.

Sl. No.	Parameters	Description	Measured/calculated
1	EG _{PJ,y}	Net electricity supplied by the project activity	Net electricity supplied is calculated based on the difference between calculated values of "export", "import" and "transmission loss". The value are obtained from EB energy meters installed at "evacuation point" and at "220 kV sub-station". The data will be sourced from JMR (Joint Meter Reading) which are recorded in the presence of representatives of both the Project proponent & EB, which is acceptable. The estimated value of 105,335.00 MWh is checked to be OK

The parameter is continuously monitored and recorded monthly as required by the methodology ACM 0002 version 16.0. The parameter is monitored to ensure that the emission reductions during the monitoring period are real and accurate. All the metering equipment installed at "evacuation point" and at "220 kV sub-station" have been verified during the site visit and found that all the meters are accurate and are able to measure the required parameters during the

crediting period. DOE has verified the technical specifications of all monitoring equipment installed in the plant and found to be appropriate.

In summary DOE concluding that the monitoring parameter and the metering equipment chosen by the project proponent are in compliance with the chosen methodology ACM 0002 version 16.0 and meet all the requirements of large scale project activities.

The described monitoring mechanism, data collection procedures were verified during the site visit and found to be appropriate. It is confirming that the PP can able to measure the parameter required for the calculation emission reductions during the crediting period.

DOE has interviewed the management during the site visit and found that the Personnel responsible for the monitoring and the emission reduction calculations are well trained and are technically qualified.

According to document review in the PD and on-site interviews with the representatives of the PP, detailed monitoring procedures, monitoring structure, management team, monitoring items and functions are clearly demonstrated in the PDD which will enable subsequent verification of the project's emission reductions in line with the applied methodology. The validation team confirms that the specific uncertainty levels, methods and associated accuracy level of measurement instruments and calibration procedures used for parameter are identified in the PD /P02/, along with detailed quality assurance and quality control procedures. All the monitored data will be archived until 2 years after the crediting period to facilitate cross-checking during the crediting period.

Hence the validation team considers that the PP is capable to implement the monitoring plan and hence confirms compliance of VCS guidelines.

3.3 Non-Permanence Risk Analysis

Not applicable

3.4 Environmental Impact

The project activity is expected to have positive impacts and no significant adverse environmental impact due to project activity is foreseen since the proposed project is a renewable energy (wind energy) project with no project emissions. There is no mandatory legal requirement for carrying out EIA for wind power projects, which was verified by means of EIA notification dated 14 September 2006, of MoEF /B08/.

The validation team concludes that the environmental impact by the project activity is been assessed by the project proponent and the same is stated in the PDD. To confirm the impact associated with the project proponent, the validation team has physically inspected during the on-site visit and also through conducting the relevant stakeholders.

3.5 Comments by Stakeholders

TUV Rheinland considers the local stakeholder consultation carried out adequately. The local stakeholder consultation was carried by distributing survey forms 04/01/2013 and responses were received during the physical stakeholders meeting on 19/01/2013. All the stakeholders appreciated the project and no negative comments received from the stakeholders. These are confirmed through the minutes of stakeholder feed back forms and through interview with the stakeholders during the site visit.

4 VALIDATION CONCLUSION

The validation team assigned by the DOE (TÜV Rheinland (China) Ltd.), is been assigned by “Orange Renewable Power Private Limited” to perform the validation of their project “Bundled Wind Power Project in Rajasthan by Orange Renewable Power Private Limited” in India with regard to the requirements of VCS standard version 3.5

The GHG emission reduction would happen by displacing the fossil fuel dominated grid electricity equivalent to the net renewable electricity supplied through renewable wind energy technology. Thus the project activity result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In the course of the validation 9 Corrective Action Requests (CARs), 2 Clarification Requests (CLs) were raised and successfully closed. No Forward Action Request (FAR) was raised during validation of the project activity.

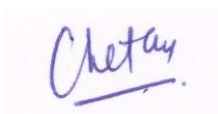
The review of the project design documentation and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the TÜV Rheinland (China) Ltd with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- A reasonable level of assurance has been applied.
- All data and information used for ex-ante calculation of emission reductions is of projected and/or hypothetical nature.
- The project is in line with all relevant host country legislation incl. its GHG assertions, where applicable.
- The project additionality is sufficiently justified in the VCS-PD.
- The monitoring plan is transparent and adequate.
- The calculation of the baseline emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,028,700 tCO₂e is most likely to be achieved within the 10 year renewable crediting period with the average annual emission reduction of 102,870 tCO₂e.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation against the VCS standard, version 3.5 without any qualifications or limitations.

Mr. Chetan Swaroop Sharma (Team Leader)



TÜV Rheinland (India) Pvt. Ltd.
Bangalore, 30/03/2015

Mr. Henri Phan (DOE/AIE Manager)



TÜV Rheinland (China) Ltd.
Beijing, 30/03/2015

APPENDIX I: LIST OF REQUESTS FOR CORRECTIVE ACTION (CAR) AND CLARIFICATION (CL)

No.	Type of request	Observation	Summary of project proponent response	Validation team conclusion
1	CAR-01	PP is requested to use PP name consistently over the PD.	The PP name has been made consistent throughout the PD.	Required corrections have been done. Hence CAR-01 is closed.
2	CAR-02	Contact person name and title in the table 1.3 of PD is missing.	The name and title of the contact person has been included in the table 1.3 of revised PD.	Required corrections have been done. Hence CAR-02 is closed.
3	CAR-03	Correct the scale of the project in table 1.7 of the PD.	As per the definition in VCS guidelines, the project falls under the category of "Projects"	Validation team has checked the section 3.9.1 of VCS standard /B01/ and found the PP response OK. Hence CAR-03 is closed.
4	CAR-04	Correct total estimated CERs in the section 1.7 and 3.4 of the PD.	The total of estimated emission reductions (VCUs) has been corrected in the section 1.7 and 3.4 of the revised PD.	Required corrections have been done and found OK. Hence CAR-04 is closed.
5	CAR-05	In section 2.3 of the project PD, Provide a diagram or map of the project boundary showing clearly the physical locations of the various installations or management	The section 2.3 of the revised PD has been updated to include detailed "project	The diagram has been included in the revised VCS PD

		activities taking place as part of the project activity based on the description provided in Section 1.8. For non-AFOLU projects, include in the diagram the equipment, systems and flows of mass and energy. Include the GHG emission sources identified in the project boundary.	Boundary” diagram. The diagram includes location of WEGs, location of pooling station, sub-stations and associated meters as well.	and found OK. Hence CAR-05 is closed.
6	CAR-06	In the section 4.1 of the VCS PD, PP is requested to mention the year for which the Built margin emission factor used. Also mention the tool version in this section.	The build margin has been used from the most recent CEA data version 10.00. It is for the year 2014 and the same has been updated in the revised PD.	Required corrections have been done and found OK. Hence CAR-06 is closed.
7	CAR-07	In the section 3.1, the calculation of the emission factor could be mentioned along with justification of the chosen options as per the emission factor tool.	The value of combined margin has been included in the section 3.1 of the revised PD. The value of BM & CM have sourced from NEWNE grid. The description under parameter EFgrid,CM,y has been revised to include the weightage of OM & BM. Also the DOE has been provided with the CEA spread sheet which is used to calculate the	Validation team has checked the CEA spread sheet /B07/ and found revised VCS PD OK. Combined margin factor has been calculated correctly from the CEA database. Hence CAR-07 is closed.

			CM.	
8	CAR-08	There is no diagram indicating the metering system in section 4.3 of the PD.	Daigrams indicating the position of meters for both the projects has been included in the section 4.3 of the revised PD.	The diagram indicating the metering system has been included in the revised VCS PD. Hence CAR-08 is closed.
9	CAR-09	Elaborate the section “stakeholder comments section”.	The stakeholders’ section has been elaborated to include the mode of invitations, date of stakeholders’ meeting and the details of comments in the revised PD section 6.	Validation team has checked stakeholder consultation records /P12/ and found the corections in the VCS PD OK. Hence CAR-09 is closed.
10	CL-01	The date of decision making is not clear in the VCS PD. PP is requested to mention in the VCS PD.	Detailed chronology of the project activity has been included in the revised PD. It includes date of decision making start date etc. The complete financial analysis has been done on the basis on information available at the time of decision making.	Validation team has checked the revised VCS PD and found OK. The date of decision making is checked from /P25/ and found OK. Hence CL-01 is closed.

11	CL-02	Since PLR is used for project activity as a suitable financial benchmark. The justification for the suitability is not justified properly in the VCS PD.	The source of BPLR in the PD has been provided to the DOE. The PLR of 5 Nationalized banks has been provided to DOE.	The justification for the PLR has been provided in the VCS PD. Hence CL-02 is closed.
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