

44.40 MW Wind Energy Project by Ruchi Soya Industries Limited, India



TÜV NORD CERT GmbH
JI/CDM Certification Program
Langemarckstraße, 20
45141 Essen, Germany
Phone: +49-201-825-3335
Fax: +49-201-825-3290

www.tuev-nord.de

www.global-warming.de

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Prepared By	TUV NORD CERT GmbH
Contact	TÜV NORD CERT GmbH JI/CDM Certification Program Langemarckstraße, 20 45141 Essen, Germany Phone: +49-201-825-3335



Approved By	Fax: +49-201-825-3290
	Mr. Martin Saalman
	Mr. Prasad Jakkaraju (TL)
Work Carried Out By	Mr. Jimmy Sah (TM)
	Mr. Sukanta Das (TM)

Summary:

Provide the following:

- *A brief description of the validation and the project,*
- *The purpose and scope of validation*
- *The method and criteria used for validation*
- *Any findings, restrictions of uncertainties related to the validation*
- *Summary of the validation conclusion*

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ABBREVIATIONS

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CL	Clarification Request
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCS - PD	VCS - Project Description
VCU	Voluntary Carbon Unit
VVM	Validation and Verification Manual

1 INTRODUCTION

1.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of the VCS standard v3.1;
- the requirements of the approved methodology;
- relevant rules, including the host country legislation

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Voluntary Carbon Units (VCUs).

1.2 Scope and Criteria

The validation scope is given as a thorough independent and objective assessment of the project design including especially the correct application of the methodology, the project's baseline study, additionality justification, stakeholder involvement, environmental impacts and monitoring plan, which are included in the PD other relevant supporting documents, to ensure that the proposed VCS project activity meets all relevant and applicable VCS standards v 3.1 criteria.

The information included in the PD and the supporting documents were reviewed and assessed against the requirements as set out by the VCS standard v 3.1.

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP cannot be held liable by any entities for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

On the basis of a competence analysis and individual availabilities a validation team was appointed. Furthermore also the personnel for the technical review and the final approval were determined. The list of involved personnel, the tasks assigned and the qualification status are summarized in the table below.

Table 1-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Verification competence ⁵⁾	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	Prasad Jakkaraju	TUV India Pvt. Ltd.	TL ^{A)}	LA	☒	1.2	☐	☒	☒
☒ Mr. ☐ Ms.	Jimmy Sah	TUV India Pvt. Ltd.	TM ^{A)}	LA	☒	1.2	☒	☒	☐
☒ Mr. ☐ Ms.	Sukanta Das	TUV India Pvt. Ltd.	TM ^{A)}	LA	☒	-	☐	☒	☒
☒ Mr. ☐ Ms.	Samir Beqqal	TN Cert	TR ^{B)}	LA	☒	-	☒	☐	-
☒ Mr. ☐ Ms.	Martin Saalman	TN Cert	TR ^{B)} /FA ^{B)}	SA	☒	1.2	☒	☐	-

¹⁾ TL : Team Leader; TM : Team Member, OT: Observer Team, TR: Technical review; FA: Final approval;

²⁾ GHG Auditor Status: A : Assessor; E : Expert; SA: Senior Assessor; T : Trainee; TE Technical Expert

^{A)} Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

^{B)} No team member

1.3 Level of assurance

The validation has been planned and organized to achieve a

- ☒ Reasonable level of assurance
- ☐ Limited level of assurance

1.4 Summary Description of the Project

The project activity involves the installation of the Wind Turbine Generators (WTGs) in different locations of Madhya Pradesh and Rajasthan with a total installed capacity of 44.40 MW. The project activity is a conscious attempt by the project proponent to invest in renewable energy despite of the apparent lack of financial feasibility. The main purposes of the project activity are:

- To utilize renewable wind energy for generation of the electricity.
- To wheel the generated electricity from three WTGs installed at Ratlam through NEWNE grid for captive use to the company's plants in the state of Madhya Pradesh.
- To sell the generated electricity from all other WTGs installed in Madhya Pradesh and Rajasthan and connected with the NEWNE grid to the respective state electricity utilities.
- To contribute in mitigating the climate change.

The project activity is a renewable source of electricity generation and supplies the electricity to the NEWNE grid. The total installed capacity of the project activity is 44.40 MW equipped with 44 WTGs with rated capacity of 600 kW each (model S-52) and 12 WTGs with rated capacity of 1500 kW each (model S-82). The electricity generated by three WTGs of capacity 600 kW each in Madhya Pradesh is being wheeled to the company's plants in the state-Madhya Pradesh and the electricity from the remaining WTGs of 42.60 MW installed capacity is being sold to the respective state utilities.

All WTGs involved in the project activity are developed and supplied by Suzlon Energy Limited. Suzlon Infrastructure Services Limited (SISL), a SUZLON Group Company, will provide all operations and maintenance services to the project activity.

The WTGs of the project activity are located as follows:

Phase	Capacity	Make / Model	Location
Phase-I	16x600 kW = 9.60 MW	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)
Phase-II	6x1500 kW = 9.00 MW	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
Phase-III	4x1500 kW = 6.00 MW	Suzlon / S-82	Shergarh & Osiyan, Jodhpur (Rajasthan)
Phase-IV	10x600 kW = 6.00 MW	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)
Phase-V	2x1500 kW = 3.00 MW	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
Phase-VI	10x600 kW = 6.00 MW	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)
Phase-VII	8x600 kW = 4.80 MW	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)

All WTGs are connected to the regional grid, NEWNE. Further, the electricity generated by the following WTGs is being wheeled for captive use:

WTG Location No.	Location	Capacity	Wheeled to RSIL's plant at
JO-10	Village-Padliya Umat, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Guna, Madhya Pradesh
JO-12	Village-Bargad, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Daloda, Madhya Pradesh
JO-19	Village-Hariyakheda, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Gadarwara, Madhya Pradesh

The electricity generated by all other WTGs is being sold to the respective state electricity utilities. Suzlon Energy Ltd. and its associated companies are the equipment suppliers and operations & maintenance contractor for the project activity.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the VCS PD submitted by the client and additional supporting documents with the use of customised validation protocol
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions
- Final validation reporting
- Technical review
- Final approval of the validation.

The sequence of the validation is given in the table 2.1 below:

Table 2.1: Validation sequence

Topic	Time
Assignment of validation	2011-04-11
On-site visit	2011-09-12
Draft reporting finalised	2011-09-15
Final reporting finalised	2011-11-29
Technical review on final reporting finalised	2012-02-25
Final corrections	2012-02-25

2.2 Document Review

The VCS PD and supporting background documents related to the project design and baseline were reviewed. Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

2.3 Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS. During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in Table 2-2.

Table 2-2: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives – Mr. Sankalp Ved Project consultant – Mr. V. B Gupta	- Chronological description of the project activity with documents of key steps of the implementation. - Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project - Monitoring and measurement equipment and system. - Financial aspects - Deviations - Crediting period - Project activity starting date - Ownership - Baseline study assumptions - Additionality - Monitoring - Analysis of local stakeholder consultation - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - Editorial issues of the VCS PD

2.4 Site Inspections

A site visit may prove useful for this type of project. Follow-up interviews with project stakeholders may prove useful or even necessary in order to discuss and validate issues related to project baseline and additionality and to resolve issues identified in the document review. Discussions related to the technical implementation or financing of the project, follow-up interviews with the project developer may also be beneficial.

2.5 Resolution of Any Material Discrepancy

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

A **Corrective Action Request (CAR)** is established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- There is a risk that the project would not be registered or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3 VALIDATION FINDINGS

In this section the assessments and findings from the desk review of the VCS PD, site visit, interviews and supporting documents as well as the final assessments are summarised. Table 3-1 includes an overview of all raised CARs, CLs and FARs.

Table 3-1: Overview of CARs, CLs and FARs issued

No.	Topic / Chapter	CAR	CL	FAR
3.1.1	Project scope, type, technologies and measures implemented, and eligibility of the project	1	-	-
3.1.2	Project proponent	-	-	-
3.1.3	Project start date	-	-	-
3.1.4	Project crediting period	-	-	-
3.1.5	Project scale and estimated GHG emission reductions or removals	-	-	-
3.1.6	Project activities	-	-	-
3.1.7	Project location	-	-	-
3.1.8	Project compliance with applicable laws, statutes and other regulatory frameworks	-	-	-
3.1.9	Ownership and other programs	-	-	-
3.1.10	Additional information relevant to the project	-	-	-
3.2.1	Title and Reference	-	-	-
3.2.2	Applicability	-	-	-
3.2.3	Project Boundary	-	-	-
3.2.4	Baseline Scenario	-	1	-
3.2.5	Additionality	4	3	-
3.2.6	Quantification of GHG Emission Reductions and Removals	2	-	-
3.2.7	Methodology Deviations	-	-	-
3.2.8	Monitoring Plan	-	-	-
3.3.1	Environmental Impact	-	-	-
3.4.1	Comments by stakeholders	-	-	-
-	SUM	7	4	-

3.1 Project Design

3.1.1 Project scope, type, technologies and measures implemented, and eligibility of the project

Description

The project activity is a renewable source of electricity generation and supplies the electricity to the NEWNE grid. The total installed capacity of the project activity is 44.40 MW equipped with 44 WTGs with rated capacity of 600 kW each (model S-52) and 12 WTGs with rated capacity of 1500 kW each (model S-82). The electricity generated by three WTGs of capacity 600 kW each in Madhya Pradesh is being wheeled to the company's plants in the state-Madhya Pradesh and the electricity from the remaining WTGs of 42.60 MW installed capacity is being sold to the respective state utilities.

Related Findings

☐ No CARs, CLs or FARs have been identified in this context

☒ The following finding(s) have been addressed

Baseline	3.1.1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During assessment, inconsistencies are identified regarding the capacity of the project. PP is requested to mention the same in consistent manner throughout the PD.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Inconsistencies have been corrected in the VCS-PD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Revised VCS PD has been checked by the assessment team and found that the capacity of the project activity is consistently mentioned in the VCS PD. CAR is closed.		

Baseline	3.1.1
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Final Assessment

Assessment team checked the revised PD and found that capacity of the project activity has been revised and actual capacity is mentioned consistently through the revised PD.

☒ The project technology and the description of the same are in line with the applicable VCS criteria.

3.1.2 Project Proponent

Description

This wind power project is developed by Ruchi Soya Industries Limited (RSIL). It is the flagship company of Ruchi Group of Industries and a leading player in India in edible oils, soya foods and processed foods categories. RSIL is also the highest exporter of soya meal and lecithin from India.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment

During the site visit and subsequent interview with PP, Power Purchase Agreement, statutory clearances and purchase orders are checked by validation team and found correct.

☒ The name of the PP is confirmed by the assessment team.

3.1.3 Project Start Date

Description

26/02/2010 is the earliest commissioning date among the all WTGs installed under this project activity is taken as the start date of the project activity. Same has been checked with the commissioning certificate and found correct. Thus, it is in line with the VCS standards v 3.1. Hence this day is considered to be the starting date of the project

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment

In voluntary scheme, project start date is the date on which the project began generating GHG emission reductions. During the site visit and subsequent interview with client, it is revealed that the first WTG of the project activity commissioned on 26/02/2010 and started generating GHG emission reductions. Therefore, consideration of the same is appropriate.

- ☒ Start date of the project activity has been considered appropriately in line with VCS criteria.

3.1.4 Project Crediting Period

Description

10 years of fixed crediting period has been considered for this project activity. Starting date of the crediting period is 26/02/2010 which is the earliest commissioning date among all the WTGs.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment

The start date for the project activity is based on the earliest commissioning date of the WTG which is 26/02/2010 and the same is the beginning of the crediting period for the project activity. Hence, project crediting period determination is appropriate and acceptable by the assessment team.

☒ Crediting period of the project activity has been considered appropriately in line with VCS criteria.

3.1.5 Project Scale and Estimated GHG Emission Reductions or Removals

Description

Estimated average annual GHG emission reductions from the project activity are 81,853 tCO₂e per year, which is less than 1,000,000 tCO₂e per year. Therefore, the project activity is falls under “Projects” criteria stipulated by VCS standard v3.1.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

Estimated annual emission reductions from the project activity are 81,853 tCO₂e per year, which is less than 1,000,000 tCO₂e per year. Hence, selection of scale for this project activity is appropriate.

☒ Project scale and estimated GHG emission reductions are in line with the applicable VCS criteria

3.1.6 Project Activities

Description

The project activity involves renewable electricity generation from wind energy and supplies the electricity to the NEWNE grid. The total installed capacity of the project activity is 44.40 MW which is equipped with 44 WTGs with rated capacity of 600 kW each (model S-52) and 12 WTGs with rated capacity of 1500 kW

each (model S-82). The electricity generated by three WTGs of capacity 600 kW each in Madhya Pradesh is being wheeled to the company's plants at Ratlam in the state-Madhya Pradesh and the electricity from the remaining WTGs of 42.60 MW installed capacity is being sold to the respective state utilities.

All WTGs involved in the project activity are developed and supplied by Suzlon Energy Limited. Suzlon Infrastructure Services Limited (SISL), a SUZLON Group Company, will provide all operations and maintenance services to the project activity.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

During the site visit the installed capacities of the WTGs installed under project activity have been checked with technical specifications by the validation team. Further, during the site visit and subsequent interview with client it was found that the project activity involves installation and operation of 44 WTGs with rated capacity of 600 kW each (model S-52) and 12 WTGs with rated capacity of 1500 kW each (model S-82). The generated electricity from the project activity will be sold to the NEWNE grid. Purchase order issued to Suzlon, PPA, commissioning certificate of the WTGs are checked by the Validation team and found correct and confirm the installed capacities of the project.

- ☒ The salient feature of the project activity is confirmed by the validation team.

3.1.7 Project location

Description

The project activity involves the installation of the Wind Turbine Generators (WTGs) with a total capacity of 44.40 MW. The WTGs of the project activity are located as follows:

Phase	Capacity	Make / Model	Location
Phase-I	16x600 kW = 9.60 MW	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)

Phase-II	6x1500 kW = 9.00 MW	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
Phase-III	4x1500 kW = 6.00 MW	Suzlon / S-82	Shergarh & Osiyan, Jodhpur (Rajasthan)
Phase-IV	10x600 kW = 6.00 MW	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)
Phase-V	2x1500 kW = 3.00 MW	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
Phase-VI	10x600 kW = 6.00 MW	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)
Phase-VII	8x600 kW = 4.80 MW	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)

All WTGs are connected to the regional grid, NEWNE. The electricity generated by the following WTGs is being wheeled for captive use:

WTG Location No.	Location	Capacity	Wheeled to RSIL's plant at
JO-10	Village-Padliya Umat, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Guna, Madhya Pradesh
JO-12	Village-Bargad, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Daloda, Madhya Pradesh
JO-19	Village-Hariyakheda, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600 kW	Gadarwara, Madhya Pradesh

The electricity generated by all other WTGs is being sold to the respective state electricity utilities.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

Assessment team checked all the commissioning certificates of all the WTGs installed under this project activity and found correct.

- ☒ Locations of the WTGs are confirmed by the assessment team.

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

Description

There are no mandatory law or regulation which enforces project promoters to adopt the wind electricity generation. Further, The Indian Electricity Act, 2003 does not restrict or empower any authority to restrict the fuel choice for power generation. Further the project activity has received applicable statutory clearances.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

Project has received the commissioning certificates of the respective WTGs and administrative approval from the Madhya Pradesh Urja Vikas Nigam and electrical inspectorate of Govt. of Rajasthan. All the clearances and certificates are checked by the validation team and found correct.

- ☒ This project activity complies with the applicable laws.

3.1.9 Ownership and other programs

Description

The ownership of the project is with Ruchi Soya Industries Limited. The purchase orders placed to the O&M contractor M/s Suzlon Energy Ltd. is cross checked by the validation team and found OK.

Further, this project activity has applied for CDM project and the validation of the project activity is ongoing. Furthermore, the project activity is not rejected under other GHG program.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

Interview with the PP during site visit, O&M contract, purchase order placed for the WTGs to Suzlon by the PP are the evidence that Ruchi Soya Industries Limited is the owner of the project activity.

☒ The ownership of the project activity is confirmed.

3.1.10 Additional information relevant to the project

Description

During the site visit, documents verification and subsequent interview with the client it was found that the project has applied for CDM registration and is under validation stage <http://cdm.unfccc.int/Projects/Validation/DB/22TBTNOHA12IBC1JT9ZZ2NPZLI95V6/view.html>. Thus the verification period in future would be checked for double counting.

The ownership of the project is with Ruchi Soya Industries Limited. The purchase orders placed to the O&M contractor M/s Suzlon Energy Ltd. is checked by the validation team and is found OK.

The capacity of the project activity would be fixed throughout the crediting period. There would be no expansion of the project activity.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

According to VCS standard v3.1, grouped projects are projects structured to allow the expansion of a project activity subsequent to project validation. Validation is based upon the initial project activity instances identified in the project description. During site visit and subsequent discussion with the PP, it

was confirmed that the capacity of the project would be fixed throughout the crediting period. Further, O&M contract and purchase order placed for the WTGs to Suzlon by the PP were also checked by the assessment team confirming to the capacity of the project activity.

☒ Validation confirmed that this project would not belong to group project activity.

3.2 Application of Methodology

3.2.1 Title and Reference

Description

The baseline methodology selected for this project activity is “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (<http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L>).

Reference : ACM0002

Version : 12.1.0

Sectoral Scope : 01

Related Findings

☐ No CARs, CLs or FARs have been identified in this context

☒ The following finding(s) have been addressed:

Final Assessment:

The project activity involves installation of WTGs and generation of renewable electricity from wind energy and the generated electricity will be fed to the NEWNE grid. Hence, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, ACM 0002 Version 12.1.0 has been selected for this project. Same has been assessed by the validation team and found that methodology selection is correct.

☒ The applied baseline methodology selection is correct.

3.2.2 Applicability

All applicable applicability criteria have been duly addressed in the VCS-PD. The validation team arrived at the conclusion that all the applicable applicability criteria are met; no deviation is envisaged from the methodology.

Criteria	DOE Assessment	Fulfilled?
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	The project activity involves installation of new wind generation units in different locations of Rajasthan and Madhya Pradesh and the electricity will be supplied to the concerned electricity distribution system-NEWNE grid, which is predominantly a fossil fuel fired system. The generated electricity will be fed to the NEWNE grid. Therefore, the project activity satisfies this applicability criterion.	☒

Criteria	DOE Assessment	Fulfilled?
In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 11 of the methodology to calculate the parameter $EG_{PJ,y}$): the existing plant 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 or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The project activity involves installation of new wind generation units in different locations of Rajasthan and Madhya Pradesh and the electricity will be supplied to the concerned electricity distribution system-NEWNE grid. There is no capacity addition, retrofit or replacement involved in the project activity. Therefore, this condition is not applicable for the project activity.	☒
In case of hydro power plants: - The project activity is implemented in an existing reservoir, with no change in the volume of reservoir, or - The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section of the methodology, is greater than	The project activity involves installation of new wind generation units in different locations of Rajasthan and Madhya Pradesh and the electricity will be supplied to the NEWNE grid. Hence, this condition is not relevant to this project activity.	☒

Criteria	DOE Assessment	Fulfilled?
4 W/m², or The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section of the methodology, is greater than 4 W/m².		

☒ The project activity is in line with the applicability criteria of the applied baseline methodology.

3.2.3 Project Boundary

Description

The spatial extent of the project boundary includes the project wind power generation units and all power plants connected physically to NEWNE grid that the project wind power generation units are connected to.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

The project activity involves installation of new wind generation units in different locations of Rajasthan and Madhya Pradesh and the electricity will be supplied to the concerned electricity distribution system i.e. NEWNE grid, which is predominantly a fossil fuel fired system. During site visit and subsequent discussion with the project proponent, assessment team confirmed that the selection of the project boundary for this project activity is correct and in line with the applied methodology.

☒ The project boundary selection is correct.

3.2.4 Baseline Scenario

Description

The baseline scenario identified for the project activity is the 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. The applied baseline is the MWh produced by the renewable generating unit multiplied by an emission coefficient calculated in transparent and conservative manner. In the baseline scenario, an equivalent amount of electricity would have been otherwise been generated by operation of existing power plants in the NEWNE grid and by addition of new fossil fuel based generation sources.

The selected baseline methodology, i.e., ACM0002 version 12.1.0 is applied to this project activity. The baseline under the adopted methodology is calculated as the product of baseline emission factor or grid emission factor ($EF_{grid,CM,y}$) and the net electricity exported to the NEWNE grid (EG_{PLY}). The grid emission factor is taken from latest CEA database version 06. The combined margin of emission factors (CM) is taken as 0.94865 tCO₂/MWh (ex-ante) for NEWNE grid and will be fixed for the entire crediting period. The annual electricity generation from the project activity is estimated to be 86.284 GWh/annum. The electricity production through wind turbines depends on many factors like the speed of wind and the grid availability factor etc. which are external factors to the system. As per annex 11 of EB48 the project participant hired third party engineering company to estimate the plant load factor of the project activity. The estimated plant load factors are mentioned below:

Location	Installed capacity (MW)	PLF (%)
Piploda, Ratlam	15.60	23.70%
Akal, Jaisalmer	12.00	23.36%
Osiyan, Jodhpur	3.00	22.64%
RKB, Jodhpur	3.00	22.81%
Gopalpura & Rampuriya, Ratlam	10.80	23.54%

The project activity reduces emissions of 818,530 tCO_{2e} over the ten year fixed crediting period.

Related Findings

- ☐ No CARs, CLs or FARs have been identified in this context
- ☒ The following finding(s) have been addressed:

Baseline	CAR 3.2.4.1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP has calculated the operating margin emission factor of the NEWNE grid considering total net CO ₂ emissions from the grid and total net electricity generation. However, Central Electricity Authority has already published operating margin, build margin and combined margin emission factor of NEWNE grid. PP is requested to justify the same in transparent manner.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	CEA has evaluated simple operating margin for different years based on the net electricity generation of each power unit and an emission factor for that power unit. As per applied tool 3-year generation weighted average of simple operating margin emission factor should be used as operating margin emission factor. Therefore, PP has evaluated latest 3-year weighted average of simple operating emission factor. Build margin emission factor of latest year is used as per requirement of the tool. Combined margin calculated by CEA cannot be used directly for wind power projects as per requirement of the tool - 75% of OM + 25% of BM. Hence, combined margin is also evaluated.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Justification regarding estimation of the weighted average emission factor is acceptable by the assessment team. Hence, CL is closed.		

Baseline	CAR 3.2.4.1
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Final Assessment:

The project activity involves installation of new wind generation units in different locations of Rajasthan and Madhya Pradesh and the electricity will be supplied to the concerned electricity distribution system i.e. NEWNE grid, which is predominantly a fossil fuel fired system. The generated electricity will be fed to the NEWNE grid. During site visit and subsequent discussion with the project proponent assessment team confirmed that the selection of the project boundary for this project activity is correct and in line with the applied methodology. The selected baseline methodology is ACM0002 Version 12.1.0: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". The baseline considered for the project activity is in compliance with approved methodology. There is no deviation found from the selected methodology. Same is checked by the validation team and found correct.

☒ The applied baseline scenario is duly appropriate.

3.2.5 Additionality

Description

As mentioned in the applied methodology, assessment and demonstration of additionality of the project activity has been carried out using "Tool for the demonstration and assessment of additionality" version 05.2.1. The Project Test consists of the following steps;

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Step 2: Investment analysis

Step 3: Barrier analysis

Step 4: Common practice analysis

The project compliance with the requirements and a detailed assessment of the project test criteria are as follows:

Assessment of Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

There are no mandatory law or regulation which enforces project promoters to adopt the wind electricity generation. Further, The Indian Electricity Act, 2003 does not restrict or empower any authority to restrict the fuel choice for power generation.

Assessment of Step 2: Investment analysis

Project developer has chosen investment analysis to demonstrate the project additionality. In this financial evaluation they selected benchmark analysis and project IRR as financial indicator. Having regarded to the fact that the project is funded by debt and equity the only financial indicator that could be used to demonstrate additionality is project IRR. Since the loan is repayable with interest, project IRR is the most suitable financial indicator for the project type and decision making context. The project is entitled for revenue from the project activity. Thus simple cost analysis is not appropriate for the project activity. Baseline of the project activity is not in direct control of the PP and thus investment comparison analysis is also not suitable for the project. Thus, benchmark analysis along with project IRR is chosen as the financial indicator for the project activity.

In the above background, assessment team concludes that the selection of benchmark analysis and project IRR as the financial indicator given by the project developer is in accordance with the requirements derived from the approved consolidated methodology and the methodological tools referred therein.

In order to assess the claim of the project developer that the project scenario is not economically feasible without benefits from Carbon revenues, Validation Team adopted a six-pronged strategy, viz.,

- a) Determining the suitability of the benchmark applied for the type of financial indicator presented;
- b) Conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;
- c) Cross-checking the parameters against third-party or publicly available sources;
- d) Assessing the correctness of computations carried out and documented; and
- e) Subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

a) Suitability of financial indicator and benchmark:

The project involves fresh investment requiring debt to be serviced and the equity share holders to be rewarded for the risk taken (by setting up the project through debt) project developer has chosen Internal Rate of Return (IRR) to demonstrate the additionality of the project. Para 12 of Annex 5, EB 62 of the "Guidelines on the Assessment of Investment Analysis, Version 05.2.1, states that *"Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity (ROE) are appropriate benchmarks for equity IRR"*. Hence, the guidance permits the use of project IRR as financial indicator for demonstrating the additionality using benchmark analysis. In line with guidance, the project developer has chosen the Prime Lending Rate (PLR), as the benchmark for this project activity. The decision of this project activity has been taken in two stages, viz. for 33.6 MW and for 10.8 MW. Management decision for 33.6 MW project was taken in September, 2009 and in December, 2010 management decided for 10.8 MW project. Hence, Prime Lending Rates (PLR) for the respective duration has been considered as benchmark determination.

At the time of decision making for 33.6 MW project, the PLR issued by Reserve Bank of India (central bank of India) ranged between 11% - 12¹. Hence conservatively PP has chosen the 11% as benchmark which is lowest rate of the mentioned range and thus acceptable. Previously, Prime Lending Rate issued by RBI was related to five major Banks in India. From, July 1, 2010 RBI started a policy to control lending base rates and accordingly started publishing base rates in place of PLR. Hence, during the decision making for 10.8 MW project, PLR was not available. Therefore, PP considered individual PLR data for eight major public sector banks of India at the time of investment decision. Conservatively, lowest prime lending rate (PLR) of the selected banks is considered as the benchmark for 10.8 MW project. Considering the above approach, identified benchmarks for 33.6 MW and 10.8 MW project are 11% and 12.5 % respectively.

Thus, the Validation Team concludes that the benchmark selected by the project developer is appropriate and conforms to the guidance for investment analysis.

b) Parameters and assumptions used:

¹ <http://www.rbi.org.in/scripts/WSSView.aspx?Id=13976>

The three important parameters which determine the project IRR of the project are project cost, financing pattern, and profitability estimates.

The total project cost includes land, WTGs, transformer, electrical lines, erection and commissioning cost. All these costs are based on the offer letter. Copies of these have been submitted to DOE for assessment. The project cost works out for 33.6 MW project is INR 2,159.99 million. Further, the project cost works out for 10.8 MW project is INR 688.84 million. However, Validation Team during interviews with the PP confirmed that the cost is based on the offer letter which was considered during decision making. Taking into consideration the guidance from EB vide Annex 5, EB 62 and based on the local and sectoral expertise, the Validation Team accepted the project cost. Moreover, compliance to Para 120 (B) of VVS ver 2, the assessment team also checked the project cost with the actual Purchase order and found that the IRR of the project for 33.60 is 9.69% and for 10.8 MW the IRR stands on 11.16% which still makes the project additional.

Normally in India, infrastructure projects, under which wind energy project fall, are financed by a debt equity ratio of 70:30 to 80:20. The 33.6 MW project involves a debt equity ratio of 58:42 and 10.8 MW project involves a debt equity ratio of 71:29. Total USD 40 Million was approved by the Standard Chartered bank for this project activity. The same is confirmed from the loan sanction letter received from Standard Chartered Bank in the form of foreign currency for the project activity.

The profitability estimates of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, power tariff, O&M cost, interest², depreciation, taxation. The installed capacity is a computed figures based on the individual of wind mills, which is evidenced by the offer letter. PLF is calculated by a third party engineering company "Rayon Applied Engineers." The value is conservative and the same is in line with Annex 11 EB 48. The available tariff order during decision making considered for unit price determination. According to the tariff order of MPERC and RERC, INR 4.03/kWh and INR 4.28/kWh are considered as electricity tariff for Madhya Pradesh and Rajasthan respectively. In Madhya Pradesh the electricity tariff would be changed every year up to fourth year. From the fifth year onwards it would be INR 3.36/kWh. Further, according to RERC tariff order, tariff would be fixed for entire project life. According to the project implementation schedule, project proponent would also consume 1.8 MW of generated electricity as captive in their own plant at Ratlam. Thus, according to prevailing electricity tariff for HT customer (INR 3.15 /kWh) is considered for imported electricity tariff. In line with the tariff order, 2% of the injected electricity will be deducted as wheeling charge for captive consumption. Assessment team checked all the tariff structure and accepted the assumption.

² Loan sanction letter from Standard Chartered Bank.

Further, O&M cost are based on the offer letter by the machinery supplier. According to the offer letter, same is free for first year, INR 0.70 Mn. for each WTG of 0.60 MW & INR 1.6 Mn. for each WTG of 1.5 MW per WTG for second year with 5% escalation.

c) Cross checking parameters: The cost of WTGs, power tariff, O&M cost, interest costs, depreciation and tax rate have been cross checked with prevailing MPERC and RERC tariff order and respective offer letter. Validation team assessed all the associated document of input data and found correct. The input costs considered appear to be in order.

d) Assessment of correctness of computation: The assessment involved checking the data input taken from offer letter and tariff order. Validation Team checked the respective offer letter and tariff order and ensured that appropriate inputs have been taken in the project cost and projections. The accounting principles adopted with respect computation of interest block of assets and tax computation were found to be in order. The arithmetical accuracy was also found to be correct.

The project IRR has been computed for a period of 20 years of operational life time w.r.t. commissioning period which is the life time of the project and is in conformity with the Annex 5 of EB 62. The operational lifetime for the project activity is also checked from the MPERC and RERC tariff order which was available to the PP at the time of investment decision. Thus, 20 year operational lifetime is accepted by the validation team as an average technical lifetime of the project activity. The salvage value of the project is considered as 10% of the project cost which is also as per the tariff order. In computing the IRR, the project developer has taken into account profit after tax; depreciation and interest on term loan and salvage value (in the terminal year). The principle adopted conforms to the accepted accounting and taxation principles in the host country.

Based on the above, the project IRR works out 8.31% and 9.92% for 33.6 MW and 10.8 MW respectively. In the above background, the Validation Team is convinced that the project is additional and not a business-as-usual scenario.

Sensitivity analysis: The Guidance on Assessment of Investment Analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified PLF, Tariff, O&M and project investment as the most critical assumptions. All the variables have been subjected to 10% variation. The sensitivity analysis reveals that even under more favorable conditions, the IRR would not cross the benchmark return as given in the following table:

Scenario	Project IRR without VCS Revenue for 33.60 MW	Project IRR without VCS Revenue for 10.8 MW
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Variation in Project Cost		
Project cost (-10%)	9.98%	11.68%
Project cost (0%)	8.31%	9.92%
Project cost (+10%)	6.90%	8.43%
Variation in O&M Charges		
O&M Charges (-15%)	8.86%	10.45%
O&M Charges (0%)	8.31%	9.92%
O&M Charges (+10%)	7.93%	9.56%
Variation in Tariff:		
Tariff (-10%)	6.23%	Not Applicable (as tariff is fixed)
Tariff (+10%)	10.25%	
Variation in PLF:		
PLF (-10%)	6.34%	7.89%
PLF (0%)	8.31%	9.92%
PLF (+10%)	10.16%	11.84%

From the sensitivity analysis, assessment team concludes that:

- With an increase of 10% in the PLF the project IRR without VCU revenues remains below the benchmark.
- The project cost has been considered as per the offer letter. Sensitivity for variation in the project cost has been carried detailed.
- The O&M values have been confirmed with the actual O&M agreement with Suzlon Energy Limited and any further reduction in the cost is ruled out.
- The IRR reaches a maximum of 11.16% on subjecting the tariff to +10% sensitivity, based on which the project does not cross the benchmark.

Summary:

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the Guidance issued by EB vide Annex 5 of EB 62 on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from Carbon revenues.

Assessment of Step 3: Barrier analysis

Project proponent has not considered barrier analysis for additionality demonstration. Hence, validation team is not considered the same for assessment.

Assessment of Step 4: Common practice analysis

The project activity is a 44.40 MW wind power project installed by Ruchi Soya Industries Limited in the states of Madhya Pradesh and Rajasthan to generate, consume and supply electricity to the NEWNE grid. As per the "Tool for the demonstration and assessment of additionality" (Version 05.2), the common practice analysis is carried out on the similar projects in the same region and taking place in a comparable environment with regards to regulatory framework, investment climate etc. The project is a large scale CDM activity. Hence, common practice analysis has been conducted based on the following criteria:

- Similar project activities should be defined as the electricity generation projects in the same region (Madhya Pradesh and Rajasthan) relying on similar technology (wind power technology) and with a similar scale (large scale with installed capacity more than 15MW) by single project participant.

Therefore, for the purpose of common practice analysis, region is defined as the State of Rajasthan and Madhya Pradesh, similar technology has been defined as wind energy technology and similar scale has been defined i.e. large scale projects. Considering the change in the wind velocity between locations, varying tariff policies of SERCs validation Team is of the view that the selection of Rajasthan and Madhya Pradesh is in conformity with VCS standard v3.1. Considering the total installed generating capacity in India, Wind power project development is insignificant in the Indian power sector as well as in terms of realization of the total wind potential.

Accordingly, all wind power projects of greater than 15 MW capacity set by single project proponent in the states of Madhya Pradesh, and Rajasthan have been analyzed. There are only 107 single project participants who have installed large scale wind power projects in India³ as on 31/03/2009. Out of these 107 large scale wind power projects in India, the installations in the states of Madhya Pradesh and Rajasthan were three and fifteen respectively and all these projects in Madhya Pradesh and Rajasthan are at different stages of validation.

³ http://www.windpowerindia.com/index.php?option=com_content&view=article&id=21&Itemid=26

In order to encourage growth in the sector the government offers financial incentives like accelerated depreciation, 10 year tax holidays and an increased (as compared to conventional sources) tariff rate for procuring electricity. The Eleventh Five Year Plan targets a wind power capacity addition of 10,500MW by 2012. In fact the incentives draw attention to the fact that wind energy is still not common practice and needs an impetus to sustain itself. This is in part due to the barriers mentioned above. Further majority of the Wind power projects in the state are under CDM pipeline demonstrating the importance of carbon revenues for wind sector.

Thus based on the above assessment it is clear that wind power projects in the state of Madhya Pradesh, and Rajasthan are not a common practice and all the wind projects in the state of Madhya Pradesh and Rajasthan are availing Carbon revenue.

Thus the project fulfills the entire applicable criterion as per the financial assessment carried out according to Assessment of Investment Analysis. Thus the Validation team concludes that the project is not feasible without Carbon revenues and hence the project is additional as per the requirements under VCS scheme.

Related Findings

- ☐ No CARs, CLs or FARs have been identified in this context
- ☒ The following finding(s) have been addressed:

Additionality	CAR 3.2.5.1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Benchmark considered for both the projects (33.6 MW and 10.8 MW) do not appear to be correct. As per Weekly Statistical Supplement published by the Reserve Bank of India, the PLR prevailing during September 2009 (when the investment decision is reported to have been taken) was 11-12% only. As regards 10.8 MW project, the reasons and basis for selecting BPLR of 8 banks has not been explained anywhere.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP considered annual report published by RBI for the year ending on 30/06/2009 for deciding benchmark for the project activity of 33.6 MW. The annual report contains BPLR data for last three years as follows:		
	Month	Public Sector Banks	Private Sector Banks
	March 2007	12.25%-12.75%	12% - 16.50%

Additionality	CAR 3.2.5.1		
	March 2008	12.25%-13.50%	13% - 16.50%
	March 2009	11.50%-14%	12.75%-16.75%
	April-July 2009	11%-13.50%	12.50%-16.75%
	PP considered BPLR of public sector banks for deciding benchmark as BPLR of public sector banks was more consistent (less variation) and conservative than that of other banks. Hence, PP has revised the VCS PD and considered the lower range of BPLR, prevailing during April to July 2009 considering that more conservative approach than a spot value as PLR changes with respect of time. In practice also PLR is not fixed for complete tenure but kept floating during loan tenure. On July 1, 2010 RBI started a policy to control lending base rates and accordingly started publishing base rates in place of BPLR. Therefore, BPLR data for different banks was not available on RBI website at the time of investment decision for 10.8 MW project. PP considered BPLR data of 8 major public sector banks for deciding the benchmark and conservatively used minimum of all the values to select benchmark for 10.8 MW project. PP has revised the VCS PD accordingly.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	For 33.6 MW project, PP considered prevailing BPLR rate from Reserve Bank of India (during April to July 2009) at the time of decision making and conservatively consider lowest rate (11%) as benchmark to evaluate the financial return. Further, for 10.8 MW project, BPLR data was not available in line with RBI policy, dated 1st July, 2010. According to the estimation procedure, RBI considered major five public sector banks in India for BPLR rate. Therefore, in absence of published BPLR rate by RBI, PP considered individual BPLR rate of eight major public sector banks in India and lowest rate (12.5%) is considered as benchmark to evaluate the financial return. Validation team assessed both the benchmarks with their respective supportive and confirmed that both the benchmarks are conservation and appropriate considering decision making context.		

Additionality	CAR 3.2.5.1
	CAR is closed
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Additionality	CAR 3.2.5.2
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Validation team identified following inconsistencies in the financial sheet. 1. Windmill in Phase IA and Phase IV should be eligible for a tariff of Rs.4.35/kWh as these windmills commenced operation after 14/05/2010. Likewise, power tariff of Phase VI does not appear to be correct. 2. Formula used in row 27 of Financials of 33.6 MW worksheet (Tariff & OM) does not appear to be correct. Corrections are requested in this regard.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The electricity generated from wind mills in phase-IA is being used as captive by PP. Therefore, tariff applicable to HT consumers in M.P. in the year 2009-10 was applied⁴. In case of Phase-IV new tariff @ Rs. 4.35 / unit was not known to the PP at the time of decision making hence not considered for financial evaluation. The tariff that was available at the time of decision making was applied in financials. The power tariff of Phase V (not VI) is correct as available at the time of decision making. Moreover, during sensitivity analysis, all tariffs are varied $\pm 10\%$ for 33.60 MW project and the project activity remains additional after variations in tariffs also. 2. It is correct. Row 27 has been taken same as row 24 but one year

⁴ <http://www.mperc.nic.in/290709-Tariff-FY09-10-HV-FINAL-29-07-09.pdf> page 7

Additionality	CAR 3.2.5.2
	forward. Row 27 is related with Phase-IV (commissioning date 31/03/2011) while row 24 is related with Phase-I B (commissioning date 31/03/2010). Same tariff was applicable to both phases. Therefore, considering lag of one year in commissioning applicable tariff is evaluated.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. PP has considered prevailing electricity tariff in line with the tariff applicable to HT consumers in M.P. in the year 2009-10. Further, for Phase-IV, Phase V and Phase VI electricity tariff are also taken from available tariff order which was available during decision making. These considerations are also in line with the para 6 of Annex 5 of EB 62. Hence, justification is appropriate and acceptable. 2. According to para 10 of MPERC tariff order for procurement of power from Wind Electric Generators, November, 2009, electricity tariff are: • For first year Rs. 4.03 per unit. • For second year Rs. 3.86 per unit. • For third year Rs. 3.69 per unit. • For fourth year Rs. 3.52 per unit. • From fifth to end of the project life Rs. 3.36 per unit. Same has been considered in the financial return estimation according to their commissioning date. Therefore, calculation procedure mentioned in row no 27 is correct and acceptable. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Additionality	CAR 3.2.5.3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g.</i>	Assessment team identified following inconsistencies in the financial sheet. 1. Surcharge reckoned for Income Tax in the case of Phases IV and V		

Additionality	CAR 3.2.5.3
section)	does not seem to be correct 2. Forward premium for foreign currency (in respect of repayment) has been provided for quarter and half year. Please check whether this is correct and furnish suitable documentary evidence in support of the same. Corrections are requested in this regard.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Yes, surcharge is not correct in real terms. But new surcharge @ 7.5% applicable in the year 2010-11 was not known in advance in the decision making year 2009-10. Therefore, surcharge @ 10% applicable in the year 2009-10 was applied as it was available at the time of decision making. 2. Forward premium for foreign currency has been applied as per repayment schedule (quarterly or half-yearly). Hedging is done in such type of loans one year prior to the repayment schedule. The similar type of hedging is proposed in the evaluation of forward premiums. Concerned references have been provided in financials sheets.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. According to IT Act for the year 2010-11, applicable surcharge is 7.5%. Furthermore, same was 10% in the year 2009. Hence, consideration of 10% surcharge is appropriate during decision making context which is in line with para 6 of Annex 5 of EB 62 and acceptable to the assessment team. 2. For this project activity, loan was arranged in two part (ECB-I and ECB-II). For ECB-I repayment would be done quarterly and for ECB-II repayment would be done half yearly basis. Same has been checked from the respective loan document and found correct. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Additionality	CL 3.2.5.4		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Assessment team identified following inconsistencies in the financial sheet. - IT depreciation has been provided on windmills at 80%, Please clarify whether the depreciation is 80% or 100% - Book depreciation has been provided at 4.75% on the assets based on Schedule XIV of Companies Act and that too the depreciable value has been restricted to 90% of the value of the assets. Clarify whether the company adopts 4.75% or 5.28% depreciation rate in its books and whether the depreciation is restricted to 90% of the value of assets as per company's accounting policy. Please furnish documentary evidence to that effect. Clarifications are requested in this regard.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	- PP has taken 80% accelerated depreciation not 100%. Additional depreciation of 20% for first year, u/s 32 of IT Act, has not been availed. - PP has taken 4.75% book depreciation in its books but up to 100%. Relevant changes have been made in the financials.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	- In line with the IT act, 80% IT depreciation has been considered. Sectoral expertise confirmed the said assumption is correct and acceptable to the assessment team. - Book depreciation consideration at the rate of 4.75% on the assets is correct and in line with point II.i.a of the Schedule XIV of Companies Act. Further, PP has also made the necessary revision on the financial sheet considering this value. Same is found correct and acceptable to the assessment team. CL is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Additionality	CL 3.2.5.5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Assessment team identified following inconsistencies in the financial sheet. 1. Please clarify the reasons for taking 3 months forward premium for ECB 1 and 6 months forward premium for ECB II. Also explain the reasons for sourcing the forward premium from 11/02/2010 and 03/12/2010 Weekly Statistical Supplements. 2. In phase IA and IB, entire capital expenditure is reckoned in the year 2010-11. Considering the fact that 4.8 MW commenced generation only in June 2011, clarify whether the entire investment was made in 2010-11. Clarifications are requested in this regard.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The forward premiums are revised by considering 3 months forward premiums for both ECB loans. The forward premiums are evaluated one repayment period prior to the actual payment due time (including repayment amount and interest). The rate of forward premium is sourced from RBI website applicable at the time of loan sanction (ECB-I) and date of decision making for 10.80 MW. 2. As per offer letters only 5% of capital cost can be detained for payment after erection. Therefore, financial are revised considering 5% payment in the year 2011-12 for IB (4.8 MW) of 10.80 MW project.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1 PP has revised the forward premiums estimations by considering 3 months for both ECB loans which is in line with the loan sanction letter. Therefore, the same is acceptable to the assessment team. 2 Revised financials are assessed buy the assessment team and found correct. CL is closed.		
Conclusion	☐ To be checked during the first periodic verification		

Additionality	CL 3.2.5.5
<i>Tick the appropriate checkbox</i>	☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Additionality	CAR 3.2.5.7		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Common practice analysis section should strictly conform to the guidance given vide step 3 of Sec. 4.6.1 of VCS Standard v3.0. Moreover, only CDM projects have been taken into consideration for common practice analysis, which does not necessarily constitute the population, unless proven to the contrary with credible evidence.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Section 4.6 of VCS Standard v3.1 states "The methodology shall establish a procedure for the demonstration and assessment of additionality based upon the requirements set out below. Note that such requirements are for methodology development, and projects shall demonstrate and assess additionality in accordance with the requirements set out in the applied methodology". It is clear from this statement that all requirements mentioned in all sub-sections (including guidance as per step 3 of sub-section 4.6.1) are for methodology development. It is also clear from this statement that the projects shall demonstrate and assess additionality in accordance with the requirements set out in the applied methodology. In case of the project activity PP has applied approved methodology ACM 0002, ver. 12.1.0. The applied methodology recommends following tool for the additionality: "Tool for the demonstration and assessment of additionality, ver. 05.2.1". PP has conducted common practice analysis as per applied methodological tool. Reason for selecting only large scale wind power projects in the sample has been discussed in detail in step 4.a. Web links have been provided as evidence for all large scale wind power projects developed with revenue of GHG reductions in states under consideration-Madhya Pradesh and Rajasthan.		

Additionality	CAR 3.2.5.7
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	This project activity demonstrates the project additionality according to “Tool for the demonstration and assessment of additionality, ver. 05.2.1” which is stipulated by approved consolidated methodology ACM0002, ver. 12.1.0. Hence, the justification is acceptable to the assessment team. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Additionality	CL 3.2.5.8		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	VCS Standard v3.0 states, “Project faces capital or investment return constraints that can be overcome by the additional revenues associated with the sale of GHG credits”. Please clarify whether the projects conform to this requirement as in both the cases the IRR even with VCS benefits is lower than the benchmark.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project activity faces investment barrier as discussed in VCS-PD that can be overcome by considering VCS revenue and variation in sensitive parameters as follows: 33.60 MW Project: The cost parameters are reduced by 4% and revenue parameters are raised by 4% along with VCS revenue then project IRR will be 12.33% against benchmark of 12.25%. 10.80 MW Project: The cost parameters are reduced by 5% and revenue parameter (PLF) is raised by 4% along with VCS revenue then project IRR will be 13.15% against benchmark of 13.12%. Being optimistic PP considered the VCS revenue and desired variations in Cost parameters (project cost and O&M cost) and Revenue parameters		

Additionality	CL 3.2.5.8
	(PLF and Tariff) to overcome the investment barrier.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The financial calculations furnished by the PP demonstrate that the rate of return from 33.6 MW project and 10.8 MW project are 8.31% and 9.92% respectively. Furthermore in the scenario mentioned above, project return can only cross the benchmark. Hence, it is understandable to the assessment team that the project can only be financially viable considering sale of GHG credits. CL is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

3.2.6 Quantification of GHG Emission Reductions and Removals

Quantification of Baseline Emissions

Description

The project applies the monitoring methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, ACM0002 version 12.1.0. As per the monitoring requirement of applied methodology, monitoring shall consist of “Quantity of net electricity supplied by the project plant/unit to the grid in year y”. However, the project activity consists of common metering for a group of WTGs located around the project site. Thus the net electricity would be calculated out of apportioning procedure for individual WTGs. The detailed procedure to calculate the net electricity generated by the project activity WTGs is explained in section 4.3 of the VCS PD and is assessed to be appropriate. In the project, net electricity supplied to the grid is calculated as follows:

Net electricity supplied = electricity export - electricity import

- The apportioning procedure for export/import calculations are as follows;

- Calculation of apportioned electricity exported for the project activity:

Electricity exported by the project WTGs is product of Sum of controller reading of each WTGs in the project and ratio of electricity exported by the total controller reading of all WTGs installed at same feeder.

- Calculation of apportioned electricity imported for the project activity:

Electricity imported by the project WTGs is the product of controller reading of each WTGs in the project and ratio of electricity imported by the total controller reading of all WTGs installed at same feeder.

The Net electricity supplied to the grid is calculated from apportioned electricity exported and the apportioned electricity imported for each project participant connected to the common metering point

Related Findings

- ☐ No CARs, CLs or FARs have been identified in this context
- ☒ The following finding(s) have been addressed:

Emission Reduction	CAR 3.2.6.1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	As mentioned in the tariff order by M.P. Electricity Regulatory Commission for procurement of power from wind electric generators, dated November 2007 (clause no 12.10), (http://www.mperc.nic.in/Wind-tariff-order-21-11-07.pdf) 2% of the injected electricity shall be deduct towards provisional wheeling charges in terms of units. However, above mentioned regulation is not considered during emission reduction estimation. PP is requested to incorporate the same in the PD.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The wheeling charge is applicable for transmission of electricity from generation site to consumption site. It is just like fee for wheeling. Emission reductions are evaluated as per electricity supplied to the grid. Hence, reduction @ 2% should not be considered in evaluating emission reductions.		
DOE Assessment #1	According to approved methodology ACM0002 v12.1.0, emission		

Emission Reduction	CAR 3.2.6.1
<i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	reduction are only be claimed on the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity. Hence, the justification by the PP is acceptable to the assessment team. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Emission Reduction	CAR 3.2.6.2
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the assessment of the VCS PD, it is observed that estimated electricity generation per year by this project is not matching with the emission reduction sheet. PP is requested to justify the said consideration.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Estimation of electricity generation and baseline emissions has been revised in section 3.1 of VCS-PD. Now, figures of estimated electricity generation and baseline emissions are same in VCS-PD and VCU calculation worksheet.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	PP has revised the VCS PD accordingly. Same has been checked by the assessment team and found correct. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Final Assessment:

During the site visit and subsequent interview with the client it was found that monitoring of the electricity exported and electricity imported are being measured at common meter installed at the respective grid sub-station which gives both the export and import values for all the WTGs connected on common meter. However, each Wind Turbine has a separate Electronic Controller/ Meter which records the generation, working hours and other electrical data of the individual Wind Turbine. The generation data from the each WTG is apportioned in the ratio by the O&M contractor and state distribution company limited as per the PPA and the distribution company issue bills to the Project proponent on the basis of apportioned value. The apportioning method is acceptable by the assessment team

☒ The applied monitoring methodology is duly approved.

Quantification of Project Emissions

Description

The project activity is based on renewable wind energy, therefore, project emissions should not be considered as per methodology ACM0002.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

Validation team confirmed that, as per the applied methodology, the project emission for this project activity is zero.

☒ The project emission estimation is correct.

Quantification of Leakage

Description

The project activity is based on renewable wind energy. Therefore, as per ACM0002, leakage should not be considered.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

Validation team confirmed that, as per the applied methodology, the leakage for this project activity is zero.

- ☒ The project emission estimation is correct.

Summary of GHG emission reductions or removals

Description

The assumption used for ex-ante calculation is partly based on measured and estimated data. The combined margin emission factor to calculate the emission reduction for an electricity system has taken from the CEA database version 06. The estimated plant load factor for all the locations are considered from third party assessment study. All the assumption used consistently throughout the whole emission reduction calculation.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

The emission factor to calculate the emission reduction has been taken from the CEA database version 06 which is the latest version available on the CEA official website and acceptable. Further, plant load factor considered to calculate the electricity generation from the project activity is taken from the third

party assessment study which is acceptable. Further actual electricity generation is considered for those plants which are already commissioned under this project. However, all the assumption considered to calculate the emission reductions are applied consistently throughout the VCS PD.

☒ The project technology and the description of the same are line with the applicable VCS criteria.

Uncertainties Associated with the Calculation of Emissions

Description

The electricity generation data will be continuously recorded using the energy meter installed at the site. Billing meter reading will be taken once in a month jointly by the representatives of the respective distribution company representative and Suzlon personal as per the provision mentioned in the power purchase agreement. The meter used for the electricity measurement is 0.5 % accuracy class and the calibration frequency of the meter is once in a year. Further the data of net electricity generation from the project will be cross-checked with the sales invoice raised to respective distribution company. The data will be archived for 2 year after the crediting period on paper and electronically. Thus, there is no uncertainty found in monitoring for the project activity.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

During the site visit, documents review and subsequent interview with the client it was found that the data will be continuously recorded using the meter installed at the site, billing meter reading will be taken once in a month jointly by the representatives of the respective distribution company representative and Suzlon personal as per the provision mentioned in the power purchase agreement. The meter used for the electricity measurement is with 0.5 % accuracy class and the calibration frequency of the meter is once in a year. The data will be archived for 2 year after the crediting period on paper and electronically. Thus, there is no uncertainty found in monitoring for the project activity.

☒ The consideration of uncertainties is in line with the applicable VCS criteria.



3.2.7 Methodology Deviations

Description

No deviations from the applied methodology have been identified during the course of validation.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

All the applicable applicability criteria as per the methodology ACM002 version 12.1.0 are applied appropriately in the project activity. However, no deviation from the applied methodology found during the course of validation.

- ☒ No or only acceptable deviations have been applied.

3.2.8 Monitoring Plan

Description

The project applies the monitoring methodology ACM002 Version 12.1.0 for this project activity. The monitoring plan provides detailed information in the VCS-PD related to the data available during site visit and data need to be monitored during the monitoring period. In line with the applied methodology following are the parameter involved during validation and verification:

- Data available during validation:
 - Operating margin CO₂ emission factor for NEWNE grid
 - Build margin CO₂ emission factor for NEWNE grid
 - Combined margin CO₂ emission factor for NEWNE grid
- Monitoring Parameters:
 - Electricity exported to the grid by the project activity
 - Electricity imported by the project activity from the grid

- Quantity of net electricity supplied to the grid as a result of the implementation of the project activity

However, the project activity consists of common metering for a group of WTGs located around the project site. Thus the net electricity would be calculated out of apportioning procedure for individual WTGs. The detailed procedure to calculate the net electricity generated by the project activity WTGs is explained in section 4.3 of the VCS PD.

The generation data is continuously measured at the central monitoring system maintained by Suzlon. These records will be cross checked annually. Monthly reports will be prepared and signed off by the project proponent. Further the net electricity from the project can be confirmed with the sale invoices copies raised to MSEDCL (a govt. Body). Data will be archived and stored for 2 years post the crediting period both on paper and electronically.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

The below points were cross-checked during the site visit to check the authenticity of the monitoring plan described in the VCS-PD

- Monitoring : Two-way export Trivector meter will be used for monitoring.
- Accuracy : Class 0.5s
- Data type : Measured
- Frequency : Continuously
- Recording : Monthly from Joint meter
- Archiving : Paper & Electronic
- Calibration Frequency : Once in a year.

Validation team checked all the documents and confirmed that monitoring is carried out according to approved monitoring plan as mentioned in approved baseline and monitoring methodology.

- ☒ The project activity is in line with all applicability criteria of the applied monitoring methodology.

3.3 Environmental Impact

Description

As per the Schedule 1 of the EIA notification dated 27 January 1994 and further modified on 14th September 2006⁵, given by the Ministry of Environment and Forests (Government of India) under the Environment (Protection) Act 1986, EIA is not a regulatory requirement in India for wind energy projects. Thus the project activity doesn't fall under the list of activities requiring EIA. The project activity will not involve any negative environmental impacts, as the WTGs are installed for generation of power using wind which is a clean source of energy.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment:

As per the Schedule 1 of notification issued by Ministry of Environment and Forests (MoEF), Government of India on September 14, 2006, thirty-nine activities are required to undertake environmental impact assessment studies. Same has been checked by the validation team and found that the project activity is not required any Environmental Impact assessment

- ☒ The project activity is in line with the environmental impact assessment criteria of the VCS.

⁵ <http://envfor.nic.in/legis/eia/eia-2006.htm>

3.4 *Comments by stakeholders*

Description

PP had conducted local stakeholders' consultation meetings at all the WTG location in Rajasthan and Madhya Pradesh to get the comments and suggestions of the local stakeholders on the project activity. The invitation was sent to the respective stakeholders by NEWS paper advertisement. The following local stakeholders were identified for the project activity:

- Local Community
- Non Government Organizations
- Village Panchayat members and villagers
- Wind Farm Developer (Suzlon Energy Limited)

The details of the conducted local stakeholders' consultation meetings are detailed in section 6 of the VCS PD.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment:

The stakeholders were invited by public notice in the news paper. All the designated stakeholders of all the WTG locations were present in the meeting. During or after the meeting no adverse comments were received. During site visit, validation team assessed all the news paper advertisement, public notice, stakeholder attendance sheet and found acceptable.

☒ The stakeholder consultation process is in line with the VCS requirements

4 VALIDATION CONCLUSION

Ruchi Soya Industries Limited has commissioned the TÜV NORD JI / CDM Certification Program to carry out the validation of the Project "44.40 MW Wind Energy Project by Ruchi Soya Industries Limited, India with regard to the requirements of VCS Standard v3.1. The project activity involves installation of 44.4 MW Turbine Generator (WTGs). The project activity is located at different places in Madhya Pradesh and Rajasthan. Both the states are under the NEWNE which is a part of the NEWNE grid. The project activity is expected to generate approximately 86.284 GWh of electricity per year.

In the course of the draft validation 8 Corrective Action Requests (CARs), 3 Clarification Requests (CLs) were successfully closed. The review of the project design documentation and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the TÜV NORD JI/CDM CP 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.
- Deviations from the applied CDM methodology have sufficiently been addressed and justified.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 81,853 tCO_{2e}/annum is most likely to be achieved within the 10 year fixed crediting period.

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 v3.1 without any qualifications or limitations.

Mumbai, 2012-02-25



Mr. Prasad Jakkaraju
TÜV NORD JI/CDM Certification Program
Validation Team Leader

Essen, 2012-02-25



Mr. Martin Saalman
TÜV NORD JI/CDM Certification Program
Final Approval

REFERENCES

Table 5-1: Documents provided by the project participant

Reference	Document																																										
/ADD/	1. Loan sanction letter dated 19/03/2009																																										
ICS/	Commissioning certificates for project WTGs; <table><tr><th>Site</th><th>Capacity</th><th>Commissioning Date</th></tr><tr><td>Osiyan</td><td>3.00 MW</td><td>26/02/2010</td></tr><tr><td>RKB</td><td>3.00 MW</td><td>08/03/2010</td></tr><tr><td>Akal</td><td>9.00 MW</td><td>26/03/2010</td></tr><tr><td>Jaora</td><td>6.60 MW</td><td>27/03/2010</td></tr><tr><td>Jaora</td><td>1.20 MW</td><td>30/03/2010</td></tr><tr><td>Jaora</td><td>1.80 MW</td><td>31/05/2010</td></tr><tr><td>Akal</td><td>1.50 MW</td><td>24/01/2011</td></tr><tr><td>Akal</td><td>1.50 MW</td><td>15/02/2011</td></tr><tr><td>Jaora</td><td>4.20 MW</td><td>29/03/2011</td></tr><tr><td>Jaora</td><td>1.80 MW</td><td>30/03/2011</td></tr><tr><td>Palsodi</td><td>6.00 MW</td><td>30/03/2011</td></tr><tr><td>Palsodi</td><td>3.60 MW</td><td>04/06/2011</td></tr><tr><td>Palsodi</td><td>1.20 MW</td><td>17/06/2011</td></tr></table>	Site	Capacity	Commissioning Date	Osiyan	3.00 MW	26/02/2010	RKB	3.00 MW	08/03/2010	Akal	9.00 MW	26/03/2010	Jaora	6.60 MW	27/03/2010	Jaora	1.20 MW	30/03/2010	Jaora	1.80 MW	31/05/2010	Akal	1.50 MW	24/01/2011	Akal	1.50 MW	15/02/2011	Jaora	4.20 MW	29/03/2011	Jaora	1.80 MW	30/03/2011	Palsodi	6.00 MW	30/03/2011	Palsodi	3.60 MW	04/06/2011	Palsodi	1.20 MW	17/06/2011
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Palsodi	1.20 MW	17/06/2011																																									
IRR/	IRR calculation spread sheet																																										
INV/	Latest Copy of the Invoices raised by PP to the state grid operators																																										
LSHC/	Proof of local stake holders consultation process • Invitation letter/Public notice inviting the public for stakeholder consultation • Minutes of Public hearing • List of Participants • Extract of feedback from local stakeholders.																																										

Reference	Document
/PO/	Purchase orders of WTGs for the project activity
/PLF/	PLF study report by Rayon Applied Engineers as per requirements under EB 48, annex 11.
/PPA/	Power purchase Agreements
/SD/	Single line diagram describing all the metering points for all the WTGs related to the project activity.
/TS/	Technical specifications of wind turbine generators from manufacturers and electricity meters.
/TR/	Training records for the personal working onsite by Suzlon Energy services.
/VCS-PD/	VCS PD version 1 dated 2011-08-30 based on which the Validation exercise has been carried out. VCS PD version 2 dated 2011-09-26 based on which the Validation opinion is concluded.
/XLS/	Emission reduction calculation spreadsheet

Table 5-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 12.1.0
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GCPI/	UNFCCC: Guidelines for completing CDM-SSC PDD
/IPCC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse

Reference	Document
	Gas Inventories, 2000
/IPPC-RM/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/VCS/	VCS standard version 3.1
/VVM/	Validation and Verification Manual (Version 1.2)
/VVS/	Validation and Verification Standard (Version 02)

Table 5-3: Websites used

Reference	Link	Organisation
/HCA/	www.cdmindia.nic.in	MoEF, DNA India
/cd4cdm/	www.cd4cdm.org	UNEP Riose Centre
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ceal	www.cea.nic.in	Central Electricity Authority of India

Table 5-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Sankalp Ved	Ruchi Soya Industries Limited
/IM02/	V	☒ Mr. ☐ Ms	V.B Gupta	Green business solution

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)