

NATURELINK SOLUTIONS PRIVATE LIMITED

REG.OFFICE: H. NO. 6/121/1A, PLOT NO. G-1, VAIRAGI NI WADI, NEAR DELHI GATE SURAT – 395007
Email: audit@thenaturelink.in

Verification Report

UCR ID: 164



Title	12 MW Small-Scale Bundled Wind Power Project by M/s Shah Promoters and Developers.
Project Proponent	M/s Shah Promoters and Developers.
Project Location	Village : Chavaneshwar, Ta: Koregaon, Dist: Satara, State: Maharastra, India
Verified By	Mr. Shyam Mandliya, GHG Auditor Email: audit@thenaturelink.in Contact: +91- 7574804497, Naturelink Solutions Pvt. Ltd.
Date	10/07/2023

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<u>COVER PAGE</u>	
Project Verification Report Form (VR)	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	Naturelink Solutions Pvt. Ltd
Type of Accreditation	<input type="checkbox"/> CDM Accreditation <input type="checkbox"/> ISO 14065 Accreditation <input checked="" type="checkbox"/> UCR Approved Verifier
Approved UCR Scopes and GHG Sectoral scopes for Project Verification	Sectoral Scope: 01 Energy Industries
Validity of UCR approval of Verifier	May - 2022 onwards
Completion date of this VR	10/07/2023
Title of the project activity	12 MW Small-Scale Bundled Wind Power Project by M/s Shah Promoters and Developers.
Project reference no. (as provided by UCR Program)	164
Name of Entity requesting verification service	Creduce Technologies Private Limited (Aggregator)
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Shailendra Singh Rao Mobile: +91-9016850742 Address: 2-O-13,14 Housing Board Colony, Banswara, Rajasthan - 327001, India.
Country where project is located	India
Applied methodologies	AMS-I.D.: "Grid connected renewable electricity generation", version 18


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<p>Project Verification Criteria:</p> <p>Mandatory requirements to be assessed</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> UCR Verification Standard <input checked="" type="checkbox"/> Applicable Approved Methodology <input type="checkbox"/> Applicable Legal requirements /rules of the host country <input checked="" type="checkbox"/> Eligibility of the Project Type <input checked="" type="checkbox"/> Start date of the Project activity <input checked="" type="checkbox"/> Meet applicability conditions in the applied methodology <input checked="" type="checkbox"/> Credible Baseline <input checked="" type="checkbox"/> Do No Harm Test <input checked="" type="checkbox"/> Emission Reduction calculations <input checked="" type="checkbox"/> Monitoring Report <input checked="" type="checkbox"/> No GHG Double Counting <input type="checkbox"/> Others (please mention below)
<p>Project Verification Criteria:</p> <p>Optional requirements to be assessed</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Environmental Safeguards Standard and do-no-harm criteria <input type="checkbox"/> Social Safeguards Standard do-no-harm criteria
<p>Project Verifier's Confirmation:</p> <p>The <i>UCR Project Verifier</i> has verified the UCR project activity and therefore confirms the following:</p>	<p>The UCR-approved verifier Naturelink Solution Pvt. Ltd., verifies the following with respect to the UCR Project Activity “12 MW Small-Scale Bundled Wind Power Project by M/s Shah Promoters and Developers”</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The project aggregator has correctly described the project activity in the Project Concept Note (dated 30/05/2022) including the applicability of the approved methodology A.M.S I. D and meets the methodology applicability conditions and has achieved the estimated GHG emission reductions, complies with the monitoring methodology and has calculated emission reductions estimates correctly and conservatively.

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	<p><input checked="" type="checkbox"/> The project activity is likely to generate GHG emission reductions amounting to the estimated 1,71,333 tCO₂e, as indicated in the monitoring report, which are additional to the reductions that are likely to occur in absence of the Project Activity and complies with all applicable UCR rules, including ISO 14064-2 and ISO 14064-3.</p> <p><input checked="" type="checkbox"/> The project activity is not likely to cause any net-harm to the environment and/or society</p> <p><input checked="" type="checkbox"/> The project activity complies with all the applicable UCR rules and therefore recommends UCR Program to register the Project activity with above mentioned labels.</p>
Project Verification Report, reference number and date of approval	<p>Verification Report UCR</p> <p>Project ID: 164</p> <p>Date: 10/07/2023</p>
Name of the authorised personnel of UCR Project Verifier and his/her signature with date	<p></p> <p>Mr. Shyam Mandliya GHG Auditor Naturelink Solution Pvt. Ltd. Date: 10/07/2023</p>

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1. Project Verification Report

1.1 Executive Summary

The verification work has been contracted by project aggregator Creduce Technologies Pvt Ltd to perform an independent verification of its UCR project titled **“12 MW small-scale bundled wind power project by M/S Shah Promoters and Developers”**, UCR approved project ID:164, to establish a number of CoUs generated by the project over the crediting period from 01/03/2013 to 31/12/2022 (both days included).

Verification for the period: 01/03/2013 to 31/12/2022

In my opinion, the total GHG emission reductions over the crediting / verification period stated in the Monitoring Report (MR), submitted to me are found to be correct and in line with the UCR guidelines. The GHG emission reductions were calculated on the basis of UCR guideline which draws reference from, the standard baseline, AMS. I. D – Grid connected renewable electricity generation (Version 18.0). As per the UCR guidelines, the verification was done remotely by way of video calls, phone calls, and submission of documents for verification through emails.

I am able to certify the emission reductions from the 12 MW small-scale bundled wind power project by M/S Shah Promoters and Developers (UCR ID – 164) for the period 01/03/2013 to 31/12/2022 amounts to **1,71,333 CoUs (1,71,333 tCO_{2e})**.

Scope

The scope of the verification is the independent, objective review and ex-post determination of the monitored reductions in GHG emission by the project activity.

1. The quality of data management and records of underlying data;
2. Completeness and accuracy of calculations and baseline emission reports;
3. Proper inclusion and documentation of all project locations,
4. Correct application of offset rules for filling Baseline Period data gaps;
5. Other data, methods, and procedures deemed necessary to establish the accuracy of emission reductions.
6. Agreement stating assurance to avoid double accounting for the project to be verified, along with required proof.

The project is assessed against the requirements of the UCR program verification guidance document, UCR Standard, UCR Program Manual, and related rules and guidelines. Due professional care has been exercised and ethical conduct has been followed by the assessment team during the verification process. The verification report is a fair presentation of the verification activity. The validation of the project is not part of the present assignment and project is deemed validated post-registration by UCR.

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1.2 Description of the Project

The project activity is a renewable power generation activity which incorporates installation and operation of a 15 wind turbine generators (15 * 0.8 MW) having cumulative capacity of 12 MW, manufactured and supplied by Enercon (India) Limited in district Satara of the state of Maharashtra, India. The details of the project activity are verified with the project report copy submitted for verification.

WTG	Latitude	Longitude	Village	Taluka	District
SPDCV-24	17°47'3.522" N	74°07'36.108" E	Dhumalwadi	Koregaon	Satara
SPDCV-23	17°47'6.876" N	74°07'34.428" E	Dhumalwadi	Koregaon	Satara
SPDCV-22	17°47'10.29" N	74°07'33.318" E	Dhumalwadi	Koregaon	Satara
SPDCV-21	17°47'27.45" N	74°07'31.26" E	Kolvadi	Koregaon	Satara
SPDCV-20	17°47'31"N	74°7'30"E	Kolvadi	Koregaon	Satara
SPDCV-19	17°47'36.9"N	74°7'32.736"E	Ambewade (K)	Koregaon	Satara
SPDCV-18	17°47'40.71"N	74°7'33.69"E	Ambewade (K)	Koregaon	Satara
SPDCV-17	17°47'44.982"N	74°7'34.206"E	Ambewade (K)	Koregaon	Satara
SPDCV-16	17°47'49.092" N	74°7'34.932" E	Ambewade (K)	Koregaon	Satara
SPDCV-15	17°47'53.706"N	74°7'34.746"E	Ambewade (K)	Koregaon	Satara
SPDCV-14	17°47'58.362"N	74°7'35.154"E	Ambewade (K)	Koregaon	Satara
SPDCV-13	17°48'2.922"N	74°7'35.748"E	Ambewade (K)	Koregaon	Satara
SPDCV-12	17°48'07"N	74°07'35"E	Palshi	Koregaon	Satara
SPDCV-11	17°48'9.462"N	74°7'31.836"E	Palshi	Koregaon	Satara
SPDCV-10	17°48'12.804"N	74°7'28.482"E	Palshi	Koregaon	Satara

The technical specification is listed below;

Description	Information
Turbine model	Enercon (India) Limited (E- 53)
Rated power	800 kW

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Rotor diameter	52.9 m
Hub height	75 m
Turbine Type	Direct driven, horizontal axis wind turbine with variable rotor speed
Power regulation	Independent pitch system for each blade
Cut in wind speed	3 m/s
Rated wind speed	12 m/s
Cut-out Wind speed	34 m/s
Extreme Wind Speed	59.5 m/s
Rated rotational speed	29 rpm
Operating range rot. Speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Fiber Glass Epoxy reinforced
Output Voltage	690 V
Tower Height	74 m (Concrete)

Apart from the above technical specification of WTGs, the connectivity of all the WTGs is to a Central Monitoring Station (CMS) through high-speed WLAN modem or fibre optic cable which helps in providing real time status of the turbine at CMS with easy GUI (Graphical User Interface) and ability to monitor the functioning of the turbine from CMS.

A Supervisory Control & Data Acquisition System (SCADA) provides a graphical representation of data providing ease to understand the behaviour of WTG, long time data storage facility, access to daily generation report and power curve related information & helps to analyse the problem with graphical tools offline as well as online. The other specifications include a safety system with instrumentation for tracking individual functions of the wind turbine generator. The life time of the WTG is 20 years as per manufacturer specifications.

As mentioned in the monitoring report and emission reduction calculation sheet submitted for verification, the project replaces anthropogenic emissions of greenhouse gases (GHGs) estimated to be approximately 1,71,333 tCO₂e for the said period under verification, there on displacing 1,90,554 MWh amount of electricity from the generation mix of power plants connected to the Indian electricity grid, which is mainly dominated by the fossil-fuel based power plant.

The project activity is a grid-connected renewable energy generation project having a capacity of less than 15 MW. The project is a small-scale activity. The methodology applied in the monitoring report is verified against the A.M.S I. D “Grid connected renewable electricity generation” version 18.0.

Verified total emission reductions (ERs) achieved through the project activity during the monitoring period is summarised below:

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Summary of the Project Activity and ERs Generated for the Monitoring Period	
Project start date	31/03/2011
Start date of this Monitoring Period	01/01/2013
Carbon credits claimed up to	31/12/2022
Total ERs generated (tCO ₂ e)	1,71,333
Leakage Emission	0
Project Emission	0

1.3 Project Verification team, technical reviewer and approver:

Sr. No.	Role	Last name	First name	Affiliation	Involvement in		
					Doc review	Off-Site inspection	Interviews
1.	Technical Reviewer	Amin	Shardul	Lead Verifier, Naturelink Solutions Pvt Ltd.	Yes	No	No
2.	GHG Auditor & Technical Expert	Mandliya	Shyam	Lead Verifier, Naturelink Solutions Pvt Ltd.	Yes	No	Yes

1.4 Means of Project Verification

1.4.1 Desk/document review

The project documents submitted to UCR-approved verifier Naturelink Solution Pvt. Ltd. was reviewed and verified by the GHG Auditor and Technical Reviewer. The documents reviewed involves verification of the legal status of individual project owner for consistency, project-related documents like installation and commissioning of equipment used in project activity, environmental clearances from state or central pollution control board, monitoring related equipment/measuring instruments and their calibration records, to establish the running of equipment for the crediting period, etc.

The PCN & MR is made available to the verifier post approval by UCR which is considered as validated documents and the content of validated PCN & MR is considered as record wherever required. Further, the communication agreement made between the project owner and project aggregator is a document of the UCR registry hence the project aggregator is treated as an

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authorized representative of the project owner. All the documents submitted by the project aggregator to the verifier are treated as documents submitted on behalf of the project owner.

The list of submitted documents is available in a subsequent section of this verification report under the section “Document reviewed or referenced”-section I.

1.4.2 Onsite Inspection - Not applicable

Date of off-site inspection: DD/MM/YYYY to DD/MM/YYYY	Not applicable as per UCR guideline site visit not conducted for this verification activity.		
No.	Activity performed Off-Site	Site location	Date

1.4.3 Interviews: Telephonic and mail.

As per UCR guideline, the site visit was not conducted during the course of verification and only interviews are conducted.

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.	Bhosale	Arvind	Senior Manager (OMS) – Shah Promoters and Developers	27/06/2023	Meter calibration, project activities, and overview
2.	Prajapati	Kisan	AGM – BD Creduce Technologies Pvt. Ltd.	27/06/2023	Project Overview, PCN, Monitoring Report.

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1.4.4 Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised

Areas of Project Verification findings	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)			
Identification and Eligibility of project type	NIL	NIL	NIL
General description of project activity	NIL	01	NIL
Application and selection of methodologies and standardized baselines	--	--	--
• Application of methodologies and standardized baselines	NIL	NIL	NIL
• Deviation from methodology and/or methodological tool	NIL	NIL	NIL
• Clarification on applicability of methodology, tool and/or standardized baseline	NIL	NIL	NIL
• Project boundary, sources and GHGs	NIL	NIL	NIL
• Baseline scenario	NIL	NIL	NIL
• Estimation of emission reductions or net anthropogenic removals	NIL	01	NIL
• Monitoring Report	01	NIL	NIL
Start date, crediting period and duration	NIL	01	NIL
Environmental impacts	NIL	NIL	NIL
Project Owner- Identification and communication	NIL	NIL	NIL
Others (please specify)	NIL	NIL	NIL
Total	01	03	NIL

2 Project Verification findings

2.1 Identification and eligibility of project type

Means of Project Verification	The project has taken the reference of CDM methodology AMS-I D, version 18 Grid Connected Renewable Electricity Generation.
Findings	1. Project activity is described through UCR-approved PCN. 2. UCR project communication agreement clearly defines the Project Proponent and Project Aggregator.
Conclusion	The UCR-approved format is used for description and the project meets the requirement of the UCR verification standard and UCR project standard.

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	<p>UCR project communication agreement was submitted to the verifier and the same has been verified. Methodology referenced and applied appropriately describing the project type. The eligibility of the project aggregator is verified using the UCR communication agreement, Project correctly applies the verification standard, UCR project standard, and UCR regulations.</p> <p>The project activity is overall meeting the requirements of the UCR Verification standard and UCR project standard.</p>
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2.2 General description of project activity

Means of Project Verification	The project activity involves the operation of 0.8 kW x 15 nos. = 12 MW of small-scale bundled wind power project and its commissioning date was verified through the commissioning certificate of the project. The power evacuation at the substation is confirmed by the Group Credit Note – MSEDCL.
Findings	CAR 01: Geographical co-ordinates of SPDCV-12 & SPDCV-20 Wind turbines are not correct.
Conclusion	<p>CAR 01 closed: Project proponent has provided and updated accurate Geographical co-ordinates of SPDCV-12 & SPDCV-20 the wind turbines.</p> <p>The description of the project activity is verified to be true based on the review of PCN, MR, Commissioning Certificate, and Purchase Order Copies.</p>

2.3 Application and selection of methodologies and standardized baselines

2.3.1 Application of methodology and standardized baselines

Means of Project Verification	<p>The project has taken the reference of CDM methodology A.M.S I.D. CDM website is referred to check the latest version of the methodology. For the applicability mentioned in the PCN and MR, turbine Specification, and commissioning certificate.</p> <p>Project is greenfield renewable energy power generation unit using wind turbine generators. Project baseline scenario is electricity delivered to the grid by the project activity would have otherwise,</p>
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	been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid
Findings	The methodology applied is applicable to the project activity.
Conclusion	The methodology applied is appropriately meeting the requirements of UCR and its standardized baseline. The methodology version is correct and valid. The referenced methodology is applicable to project activity.

2.3.2 Clarification on applicability of methodology, tool, and/or standardized baseline

Means of Project Verification	The documents reviewed are A.M.S I. D “Grid connected renewable electricity generation” version 18, UCR Program standard, and UCR Verification Standard.
Findings	The emission factor ($=0.9 \text{ tCO}_2/\text{MWh}$) is taken as per the UCR standard.
Conclusion	The emission factor considered for the calculation of the emission reductions is verified with the UCR Program Standard. The total installed electrical energy generation capacity of the project equipment does not exceed 15 MW thus meeting the requirement of small-scale projects.

2.3.3 Project boundary, sources and GHGs

Means of Project Verification	Desk review and interviews, Letter from CPCB dated 07/03/2016 No. B-29012/ESS(CPA)/2015-16. PCN section B.4.
Findings	None
Conclusion	The project boundary is correctly defined in the PCN. GHG source correctly identified and reported. The project meets the requirements of UCR project standard, Verification standard, and methodology requirements for a boundary, GHG source.

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2.3.4 Baseline scenario

Means of Project Verification	MR Section-A 1.5, General Project Eligibility Criteria and Guidance, UCR Standard.
Findings	None
Conclusion	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 into the grid. The baseline scenario is appropriately described. The calculated baseline emission for each vintage year of crediting period is rounded down as per UCR standard.

2.3.5 Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	Group Credit Note - MSEDCL, Emission reduction calculations, General Project Eligibility Criteria and Guidance, calibration report, and UCR Standard, page 4.							
Findings	CAR 02: Complete meter test reports of old meter and replaced meter is pending for the year 2013 and 2017.							
Conclusion	<p>CAR 02 Closed: as emission reductions are trimmed as mentioned below for the delayed calibration period.</p> <p>Project proponent has replaced energy meter on 20/07/2017. Meter test report from 2013 to 2017 is not available with project proponent. Hence, as per CDM, EB52 report, annex-60, page -1; clause 4 for delayed calibration the emission reduction should be trimmed by the maximum permissible error of the instrument. The CoUs are trimmed by applying - 0.2% error to export units and + 0.2% to import units. The details are attached in annexure-II for reference.</p> <p>A Group Credit Note - MSEDCL is considered an acceptable document to check actual energy generation for each month.</p> <p>The energy generation was also cross-checked with the Group credit note for each month, Emission reduction calculation sheet, and electricity bills.</p> <table><tr><td>Year</td><td>Trimmed Energy Generation (0.2%)</td><td>EFgrid,y</td><td>ERs</td></tr></table>				Year	Trimmed Energy Generation (0.2%)	EFgrid,y	ERs
Year	Trimmed Energy Generation (0.2%)	EFgrid,y	ERs					

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	EGpy (MWh)		
2013	21475.48	0.9	19,327
2014	19936.55	0.9	17,942
2015	19638.65	0.9	17,674
2016	15943.32	0.9	14,348
2017	18025.23	0.9	16,222
2018	19373.68	0.9	17,436
2019	19854.16	0.9	17,868
2020	17318.89	0.9	15,587
2021	19263.34	0.9	17,337
2022	19546.97	0.9	17,592
ER (tCO ₂ e) for the period of 2013 to 2022			1,71,333

2.3.6 Monitoring Report

Means of Project Verification	Group Credit Note - MSEDCL, power purchase agreement, and general project eligibility criteria and guidance, <u>UCR</u> standard, page 4, meter calibration report
Findings	CL 01: In the MR section C-5.1, unit of total estimated baseline emission is not correct.
Conclusion	<p>CL 01 closed: project proponent has corrected the unit of total estimated baseline emission.</p> <p>Calibration reports of the meters provided by PP certify that errors are within permissible limits.</p> <p>The monitoring parameter reported in MR adequately represents the parameters relevant to emission reduction calculation. The calibration report ensures the accuracy of the data reported. The number of CoUs generation is calculated based on this accurately reported data. The calculation was done using an excel sheet where all the parameters were reported. The emission factor for electricity is as per UCR standard. In the monitoring report, emission reduction calculations are correctly calculated and reported. The monitoring report meets the requirements of UCR project verification requirements.</p>

2.4 Start date, crediting period and duration

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Means of Project Verification	PCN and MR, commissioning certificate, purchase order of turbine and technical Specification sheet and detailed project report documents were referred.
Findings	CAR 03: In the PCN first issuance period is from 01/01/2014 to 31/12/2021, while in MR the crediting period mentioned is from 01/01/2013 to 31/12/2022.
Conclusion	<p>CAR 03 Closed: The project proponent has updated the crediting period in MR as per UCR guidelines.</p> <p>The start date, crediting period and project duration are reported correctly and this meets the requirements of the UCR verification standard and UCR project standard.</p> <p>The start date: 01/01/2013</p> <p>Crediting period: 31/12/2022</p>

2.5 Positive Environmental impacts

Means of Project Verification	PCN
Findings	None.
Conclusion	The project is a renewable energy project and reduces the environmental burden by reducing the dependence on fossil fuel-based power plants.

2.6 Project Owner- Identification and communication

Means of Project Verification	PCN, communication agreement, MR, purchase order of turbine, commissioning certificate, power purchase agreement/wheeling agreement.
Findings	The declared information is correct and verified.
Conclusion	The project owner was identified through a communication agreement signed between PP and PA. Equipment purchase order and commission verified. Also, a legal document like Power Purchase Agreement/ Wheeling Agreement clearly establishes the

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	<p>project owner. The identification and communication correctly meet the requirement of project verification and UCR project standard.</p> <p>Project owner details;</p> <p>Name: M/s Shah Promoters and Developers.</p> <p>Address: AST-1, Success Chamber,1232, Apte Road, Deccan Gymkhana, Pune - 411004</p>
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2.7 Positive Social Impact

Means of Project Verification	Project has provided temporary employment to local people during its installation and commissioning. Also post commissioning some of people have employed permanently and local people were engaged leading to social financial benefit to surrounding. Overall social impact of project implementation is positive on the surrounding area.
Findings	--
Conclusion	Project has overall positive social impact.

2.8 Sustainable development aspects (if any)

Means of Project Verification	Not Applicable
Findings	--
Conclusion	The Project has the capability to address SDG 7 Affordable and Clean Energy and SDG 13 Climate Action

2.9 Others (if any)

Means of Project Verification	Not Applicable
Findings	--
Conclusion	--

3 Internal quality control:

- Due professional care has been taken while reviewing the submitted document.
- There is no conflict of interest as the verifier has no other engagement with either the aggregator or project owner directly or indirectly.
- Verification team consists of experienced personnel.
- Technical review is performed by an independent person.

4 Project Verification opinion:

Considering the above-mentioned verification conducted on the basis of UCR Protocol, which draws reference from Standard Baseline, AMS.I.D – Grid connected renewable electricity generation (Version 18.0), the documents submitted during the verification including the data, PPA, Purchase order, Calibration Report, Commissioning Certificate, Project Concept Note (PCN), Monitoring Report (MR), based on that we have raised 1 Nos. of Clarification Requests (CLs) and 03 Nos, of Corrective Actions Requests (CARs) and they were corrected, verified and closed satisfactorily.

I am able to certify that the emission reductions from the project - 12 MW Small Scale Wind Power Project by M/s Shah Promoters and Developers (UCR ID – 164) for the period 01/01/2013 to 31/12/2022 amounts to **1,71,333** CoUs (1,71,333 tCO₂e).

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5 Competence of team members and technical reviewers

No.	Last name	First name	Affiliation	Technical Competence
1.	Mandliya	Shyam	GHG Auditor and Technical Expert	Mr. Shyam Mandliya is having M.E in Chemical Engineering. He has expertise in environmental audits. He has performed environmental monitoring of different industries in Gujarat for air, water, and hazardous waste. He has also contributed to the community-based biogas project development
2.	Amin	Shardul	Technical Reviewer	Mr. Shardul Amin is a post-graduate having M. Tech in Thermal System Design. He has more than 7 years of experience in the field of waste-to-energy, thermochemical conversion technologies, and emission study. He has previously performed GHG Verification of more than 50 GHG emission reduction projects on UCR.

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Appendix 1: Abbreviations

Abbreviations	Full texts
UCR	Universal Carbon Registry
CPCB	Central Pollution Control Board
MERC	Maharashtra Electricity Regulatory Commission (GERC)
CEA	Central Electricity Authority
MR	Monitoring report
PCN	Project Concept Note
VR	Verification Report
VS	Verification Statement
DAA	Avoidance of Double Accounting Agreement
COD	Commercial Operation Date
PP/PO	Project Proponent / Project Owner
PA	Project Aggregator
PPA	Power Purchase Agreement
ER	Emission Reduction
CoUs	Carbon offset Units.
tCO ₂ e	Tons of Carbon Dioxide Equivalent
kWh	Kilo-Watt Hour
MWh	Mega-Watt Hour
kW	Kilo-Watt
MW	Mega-Watt
CDM	Clean Development Mechanism
SDG	Sustainable Development Goal
CAR	Corrective Action Request
CL	Clarification Request
FAR	Forward Action Request
GHG	Green House Gas
WTG	Wind Turbine Generator

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Appendix 2: Document reviewed or referenced

No.	Author	Title	Provider
1	UCR	Communication agreement	PA
2	Creduce	Project Concept Note	PA
3	Creduce	Monitoring report	PA
4	Creduce	Avoidance of double accounting	PA
5	Creduce	Emission reduction excel	PA
6	MSEDCL	Group Credit Note – MSEDCL (2013-2022)	PA
7	MSEDCL	Commissioning certificate	PA
	MSEDCL	Meter Test Report	
8	MSEDCL & PP	Power purchase agreement/wheeling agreement	PA
9	PP	Purchase order of turbine	PA
10	PP	Purchase order of generator	PA
11	CEA	Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2019	-
14	PP	Wind turbine purchase order/invoices	PA

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Appendix 3: Clarification request, corrective action request and forward action request

Table 1. CLs from this Project Verification

CL ID	O1	Section no.:	2.3.6. Monitoring report	Date: 27/06/2023
Description of CL				
<i>In the section C-5.1 of Monitoring report, unit of total baseline emission reductions is not Correct. Kindly correct it.</i>				
Project Owner's response				Date: 04/07/2023
<i>Unit of total baseline emission reductions is corrected and updated in MR.</i>				
Documentation provided by Project Owner				
<i>Monitoring report Version 2.0</i>				
UCR Project Verifier assessment				Date: 10/07/2023
<i>Unit of total baseline emission reduction is verified and found to be correct.</i>				

Table 2. CARs from this Project Verification

CAR ID	01	Section no.	2.2 General description of project activity	Date: 27/06/2023
Description of CAR				
<i>Geographical co-ordinates of SPDCV-12 & SPDCV-20 Wind turbines are not correct.</i>				
Project Owner's response				Date: 04/07/2023
<i>Correct Geographical co-ordinates of SPDCV-12 & SPDCV-20 Wind turbines are updated and provided.</i>				
Documentation provided by Project Owner				
<i>Revised Monitoring report version 2.0</i>				
UCR Project Verifier assessment				Date: 10/07/2023
<i>Updated Geographical co-ordinates of SPDCV-12 & SPDCV-20 are checked and found to be correct.</i>				

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CAR ID	02	Section no.:	2.3.5 Estimation of emission reductions or net anthropogenic removal	Date: 27/06/2023
Description of CAR				
<i>Complete meter test reports of old meter and replaced meter are not provided. Kindly provide.</i>				
Project Owner's response				Date: 04/07/2023
<i>Complete meter test reports of old meter and replaced meter are provided.</i>				
Documentation provided by Project Owner				
<i>Meter test reports</i>				
UCR Project Verifier assessment				Date: 10/07/2023
Since the meter calibration report from 01/01/2013 to 20/07/2017 is not available with Project proponent, as per CDM, EB52 report, annex-60, page -1; clause 4 for delayed calibration the emission reduction should be trimmed by the maximum permissible error of the instrument. The CoUs are trimmed by applying - 0.2% error to export units and + 0.2% to import units from 01/01/2013 to 19/07/2017.				

CAR ID	03	Section no.:	2.4 Start date, crediting period and duration	Date: 27/06/2023
Description of CAR				
In the PCN first CoU issuance period mentioned is 01/01/2014 to 31/12/2021 while in MR crediting period mentioned is 01/01/2013 to 31/12/2022. Kindly clarify it.				
Project Owner's response				Date: 04/07/2023
As per the UCR guidelines, the project which is currently in operation can claim credit from 01/01/2013 to 31/12/2022, therefore it is mentioned in MR.				
Documentation provided by Project Owner				
Updated Monitoring Report				
UCR Project Verifier assessment				Date: 10/07/2023
Project proponent has given justification that is correct as per UCR guidelines.				

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Table 3. FARs from this Project Verification

FAR ID	--	Section no.		Date:
Description of FAR				
Project Owner's response				Date:
Documentation provided by Project Owner				

Annexure I: Photographs of the Power Plant



Figure-1: Project Activity

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Figure-2: Wind turbine details



Figure-4: New Meter



Figure-5: Old Meter

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MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LTD
O & M CIRCLE, SATARA

Ph. No. 02162 - 244640
Fax No. 02162 - 245541

NO - SE/STRC/T - WM/ 11417

Date:

20 AUG 2011

To,

M/S Shah Promoters & Developers.
AST - 1, Success Chambers,
1232 Apte Road,
Deccan Gymkhana, Pune - 411004.

Sub : - Commissioning of 1 X 800 KW Wind Turbine Generator of M/S Shah Promoters & Developers

Ref : - 1) CE(Comm)/Co-ord cell/Wind/24380 DT 05-08-2011.
2) PGN-1/IC/ Shah Promoters /12 MW/10-11/2582 DT 22-06-11
3) PGN-1/CC/ Shah Promoters /12 MW/10-11/2653 DT 29-06-11
4) EI Satara/ 131 dt 06-07-2011
5) DYEE/WMSUB/DIV/STR/T/273 Dtd 12-08-2011

1 X 800 KW Wind Turbine Generator in respect of M/S Shah Promoters & Developers as detailed here below is commissioned on 11-08-2011. In the presence of representative of The Dy Executive Engineer - WM Sub Dn Satara, Executive Engineer - Testing Dn - Satara & M/S Enercon (India) Ltd & started supplying power to MSEDCL/ MSETCL Grid as detailed under.

Description	Sr. No.:	Make	Location	S No /Gut No /Village
	91/8799	Enercon	7	Forest Comp No 175 & Gut No 277 Dhumalwadi
Capacity	800 KW	Each		
Voltage :		440 V		
Frequency		50 C/S		
Feeder :		33 KV Enercon Feeder at 110/33/22 KV Satara Road S/Stn		

The Details of common 33 KV O/H line & the common group Metering equipments charged are as detailed here under :-

1) 33 KV over Head Line :- 3.80 kms. With Isolator & Circuit Breaker.

2) 33 Kv Current Transformer: - For Metering [Main & Check Meter]

Main Meter

Check Meter

Make - Gyro Laboratories Pvt. Ltd.

CT Ratio: 300/1 A

CT Ratio: 300/1 A

Sr. No.: R = 01/10/1594/43-75

R = 01/10/1594/40-75

Y = 01/10/1594/44-75

Y = 01/10/1594/41-75

B = 01/10/1594/45-75

B = 01/10/1594/42-75

Cl. Accu : 0.2

Ownership : Consumer

Burden : 15 VA

Burden : 15 VA

3) 33KV Voltage Transformer :- For Metering [Main & Check Meter]

Main Meter

Check Meter

Make - Gyro Laboratories Pvt. Ltd.

PT Ratio: 33KV//3/110V//3

PT Ratio: 33KV//3/110V//3

Sr. No.: R = 01/10/1594/64-75

R = 01/10/1594/66-75

Y = 01/10/1594/65-75

Y = 01/10/1594/68-75

B = 01/10/1594/67-75

B = 01/10/1594/69-75

Cl. Accu : 0.2

Ownership : Consumer

Burden : 30 VA

Burden : 30 VA

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Main Meter & Check Meter Details & Readings

	<u>Main Meter</u>	<u>Check Meter</u>
Make	: Elster S+	Elster S+
Sr. No.	: 05127600	05127601
Type	: TOD – TVM	TOD - TVM
Cl. Accu.	: 0.2	0.2

The Readings were taken before commissioning of above m/c & are shown as given below:

<u>Main Meter</u>	<u>Parameters</u>	<u>Check Meter</u>
102962.5245	Imp KWH	102785.3640
103968.7920	Imp KVAH	103800.6720
8735.9760	I RKVAH G	8834.2380
121.7430	I RKVAH D	113.9040
191.8305	Exp KWH	192.7620
218.0925	Exp KVAH	217.8720
70.3215	E RKVAH D	76.0275
82.1880	E RKVAH G	81.0945


Superintending Engineer (STRC)
MSEDCL Circle Office, Satara.

Copy s.w.r.To:

- 2) The Director (Operation) H.O. Bandra (E) Mumbai.
- 2) The Director General MEDA, Pune.
- 3) The Chief Engineer (BMT) Baramati.

Copy To:

- 1) The Ex. Engineer O & M Dn Satara
- 2) The Ex. Engineer Testing Dn Satara.
- 3) The Dy Exe. Engineer WM Sub. Dn Satara.
- 4) M/S Enercon, Satara.

Figure 6 – Commissioning certificate of 1 x 800 kW WT.

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MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LTD
O & M CIRCLE, SATARA

NO - SE/STRC/T - WM/ **04098** Date: **17 APR 2011**

To, M/S Shah Promoters & Developers,
AST - 1, Success Chambers,
1232 Apte Road,
Deccan Gymkhana, Pune - 411004.

Sub : - Commissioning of 14 X 800 KW Wind Turbine Generator of M/S Shah Promoters & Developers

Ref : - 1) CE(Comm)/Co-ord cell/Wind/10104 DT 30-03-2011.
2) PGN-1/IC/ Shah Promoters /12 MW/10-11/1077 DT 16-03-11
3) PGN-1/CC/ Shah Promoters /12 MW/10-11/1197 DT 21-03-11
4) EI Satara/ 49 to 58 dt 10-03-11 & 65 to 68 DT 23-03-2011
5) DYE/WM/SUB/DIV/STR/T/115 Dtd 06-04-2011

14 X 800 KW Wind Turbine Generators in respect of M/S Shah Promoters & Developers as detailed here below are commissioned on 31-03-2011. In the presence of representative of The Dy Executive Engineer - WM Sub Dn Satara, Executive Engineer - Testing Dn - Satara & M/S Enercon (India) Ltd & started supplying power to MSEDCL/ MSETCL Grid as detailed under.

Sr. No.:	Make	Location	S No /Gut No /Village
91/5851	Enercon	15	Forest Comp No 175 & Gut No 277 Dhumalwadi Forest Comp No 176 & Gut No 20 Kolavadi Forest Comp No 176 & Gut No 692 Ambawade (K) Forest Comp No 176 & Gut No 453 Palshi
91/5850		16	
91/8668		14	
91/8670		17	
91/8669		18	
91/8667		19	
91/8664		20	
91/8663		21	
91/8662		22	
91/8661		23	
91/8672		13	
91/8673		12	
91/8690		9	
91/8691		8	
Capacity	800 KW Each		
Voltage :	440 V		
Frequency	50 C/S		
Feeder :	Enercon Feeder at 132/33/22 KV Satara Road S/Stn		

The Details of common 33 KV O/H line & the common group Metering equipments charged are as detailed here under :-

1) 33 KV over Head Line :- 3.80 kms. With Isolator & Circuit Breaker.

2) 33 Kv Current Transformer: - For Metering [Main & Check Meter]

<u>Main Meter</u>	<u>Check Meter</u>
Make - Gyro Laboratories Pvt. Ltd.	
CT Ratio: 300/1 A	CT Ratio: 300/1 A
Sr. No.: R = 01/10/1594/43-75	R = 01/10/1594/40-75
Y = 01/10/1594/44-75	Y = 01/10/1594/41-75
B = 01/10/1594/45-75	B = 01/10/1594/42-75
Cl. Accu : 0.2	Ownership : Consumer
Burden : 15 VA	Burden : 15 VA

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3) 33KV Voltage Transformer :- For Metering [Main & Check Meter]

<u>Main Meter</u>		<u>Check Meter</u>
Make - Gyro Laboratories Pvt. Ltd.		
PT Ratio: 33KV/ $\sqrt{3}$ /110V/ $\sqrt{3}$		PT Ratio: 33KV/ $\sqrt{3}$ /110V/ $\sqrt{3}$
Sr. No.: R = 01/10/1594/64-75		R = 01/10/1594/66-75
Y = 01/10/1594/65-75		Y = 01/10/1594/68-75
B = 01/10/1594/67-75		B = 01/10/1594/69-75
Cl. Accu : 0.2		Ownership : Consumer
Burden : 30 VA		Burden : 30 VA

Main Meter & Check Meter Details & Readings

<u>Main Meter</u>		<u>Check Meter</u>
Make : ABT - Elster		ABT - Elster
Sr. No. : 05127600		05127601
Type : TOD - TVM		TOD - TVM
Cl. Accu. : 0.2		0.2

The initial Readings were taken before commissioning of above m/c & are shown as given below:

<u>Main Meter</u>	<u>Parameters</u>	<u>Check Meter</u>
234.5040	Imp KWH	234.4950
259.1775	Imp KVAH	259.1685
92.5290	I RKVAH G	92.5245
47.6055	I RKVAH D	47.5920
159.4890	Exp KWH	159.4620
178.4970	Exp KVAH	178.4655
28.8720	E RKVAH D	28.8630
68.6925	E RKVAH G	68.6835

Superintending Engineer (STRC)
MSEDCL Circle Office, Satara.

Copy s.w.r.To:

- 1) The Director (Operation) H.O. Bandra (E) Mumbai.
- 2) The Director General MEDA, Pune.
- 3) The Chief Engineer (BMT) Baramati.

Copy To:

- 1) The Ex. Engineer O & M Dn Satara
- 2) The Ex. Engineer Testing Dn Satara.
- 3) The Dy Exe. Engineer WM Sub. Dn Satara.
- 4) M/S Enercon. Satara.

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Figure 7 – Commissioning certificate of 14 x 800 kW WT.

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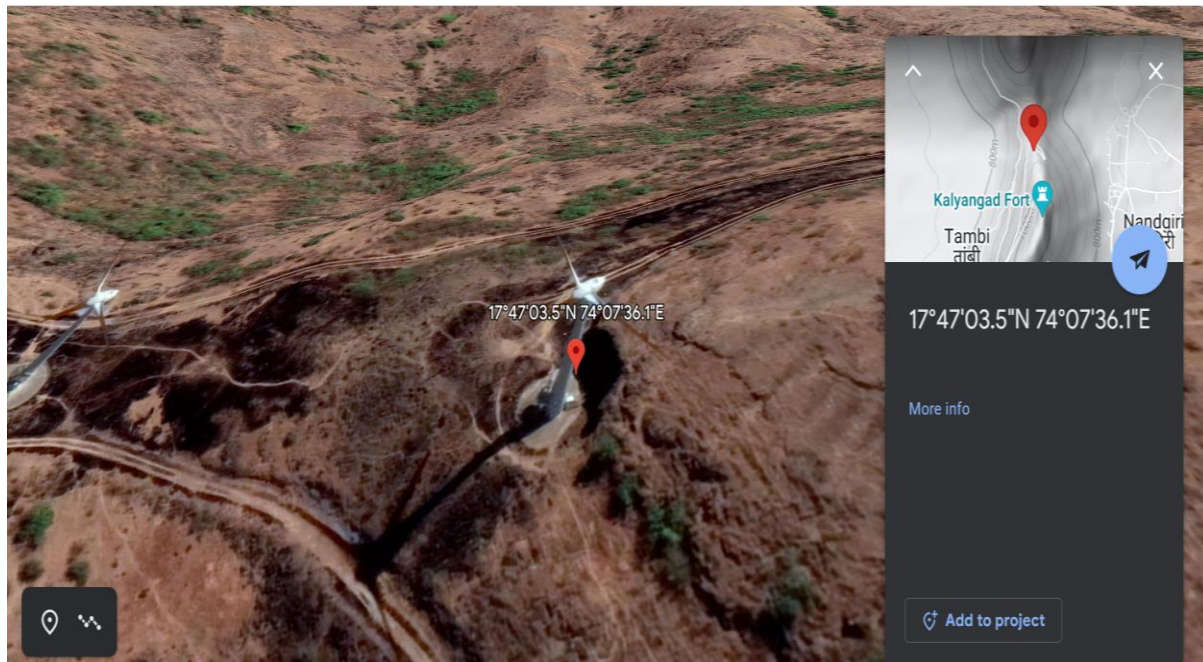


Figure-8: Google map photo of SPDCV - 24.

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Annexure II: Emission reduction calculation

Emissions Reduction Calculations					
Sr. No.	Year	Actual EGpy (MWh)	Trimmed Electricity Generation (0.2%)	EFgrid,y	BEy
1	2013	21518.59	21475.48	0.9	19,327
2	2014	19976.54	19936.55	0.9	17,942
3	2015	19678.06	19638.65	0.9	17,674
4	2016	15975.31	15943.32	0.9	14,348
5	2017	18049.2	18025.23	0.9	16,222
6	2018	19373.68	19373.68	0.9	17,436
7	2019	19854.16	19854.16	0.9	17,868
8	2020	17318.89	17318.89	0.9	15,587
9	2021	19263.34	19263.34	0.9	17,337
10	2022	19546.97	19546.97	0.9	17,592
11	BE (tCO ₂ e) for the period of 2013 to 2022				1,71,333