Verification Report

UCR ID: 262

Prepared by

Naturelink Solutions Pvt. Ltd.

Title	**990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd**
Project Owner	**M/s Sidwin Fabric Pvt. Ltd.**
Project Location	**Gambhoi Harsol road, Vi - Dhundhar, Ta-Himmatnagar, Dist - Sabarkantha, Gujarat 383030, India** **Coordinates: 23°34'59.5"N 73°06'01.9"E**
Date	**29/02/2024**

COVER PAGE **Project Verification Report Form (VR)**	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	Naturelink Solutions Pvt. Ltd
Type of Accreditation	☐ CDM Accreditation ☐ ISO 14065 Accreditation ☒ 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	29/02/2024
Title of the project activity	990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd
Project reference no. (as provided by UCR Program)	262
Name of Entity requesting verification service	Creduce Technologies Private Limited (Creduce) (Aggregator) Sidwin Fabric Pvt. Ltd (Sidwin) (Project Owner)
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Mr. Shailendra Singh Rao (Creduce) shailendra@creduce.tech Mr. Hiren Bhai (Sidwin) account@sidwinfabric.com
Country where project is located	India
Applied methodologies	AMS-I. F, Renewable electricity generation for captive use and mini-grid – Version 5.0.
Sectoral Scope(s):	01 Energy industries (Renewable/Non-Renewable Sources)
Project Verification Criteria: Mandatory requirements to be assessed	☒ UCR Verification Standard ☒ Applicable Approved Methodology

	☒ Applicable Legal requirements /rules of the host country ☒ Eligibility of the Project Type ☒ Start date of the Project activity ☒ Meet applicability conditions in the applied methodology ☒ Credible Baseline ☒ Do No Harm Test ☒ Emission Reduction calculations ☒ Monitoring Report ☒ No GHG Double Counting ☐ Others (please mention below)
Project Verification Criteria: Optional requirements to be assessed	☒ Environmental Safeguards Standard and do-no-harm criteria ☐ Social Safeguards Standard do-no-harm criteria
Project Verifier's Confirmation: The *UCR Project Verifier* has verified the UCR project activity and therefore confirms the following:	The UCR-approved verifier Naturelink Solutions Pvt. Ltd., verifies the following with respect to the UCR Project Activity "990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd" ☒ The project aggregator has correctly described the project activity in the Project Concept Note/21/ including the applicability of the approved methodology A.M.S I. F/4/ 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. ☒ The project activity is likely to generate GHG emission reductions amounting to the estimated 2119 tCO_2e, 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.

	☒ The project activity is not likely to cause any net-harm to the environment and/or society ☒ The project activity complies with all the applicable UCR rules and therefore recommends UCR Program to register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	Verification Report UCR Reference no.: NSPL/VR/2023/09/UCR/03 UCR ID: 262 Version: 1.0 Date: 26/02/2024
Name of the authorised personnel of UCR Project Verifier and his/her signature with date	 Mr. Shardul Amin Head Operations Naturelink Solution Pvt. Ltd. Date: 29/02/2024

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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 and M/s Sidwin Fabric Pvt. Ltd. to perform an independent verification of its UCR project titled **"990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd.", UCR approved project ID:262**, to establish a number of CoUs generated by the project over the crediting period from 15/06/2021 to 31/12/2022 (both days included).

Verification for the period: 15/06/2021 to 31/12/2022

In our opinion, the total GHG emission reductions over the crediting / verification period stated in the Monitoring Report (MR)/21/, submitted 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.F – Renewable electricity generation for captive use and mini-grid, version 5.0/4/. The verification was done by onsite inspection of the plant and submission of documents for verification through emails.

It is certified that the emission reductions from the 990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd. (UCR ID – 262) for the period 15/06/2021 to 31/12/2022 amounts to **2119** CoUs (**2119 tCO_2e**).

Objective

The objective of this verification is to have an independent third-party assessment of whether the project activity conforms to the qualification criteria set out in the UCR Program Manual/1/, UCR CoU Standard/2/ and UCR verification standard/3/ to attain real, measurable, accurate and permanent emission reductions.

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. To verify the project implementation and operation with respect to the registered PCN V1.0/09/.
2. To verify the implemented monitoring plan with the registered PCN V1.0/09/ applied baseline and monitoring methodology.
3. To verify that the actual monitoring systems and procedures follow the monitoring plan.
4. To evaluate the GHG emission reduction data and express a conclusion whether the reported GHG emission reduction data is free from material misstatement
5. To verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the requirements of the UCR Program Manual/1/, UCR CoU Standard/2/ and UCR verification standard/3/, ISO 14064-2.

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.

1.2 Description of the Project

The project activity is a renewable power generation activity which incorporates operation of 828 kW (AC) ground-mounted solar project installed by M/s. Farmson Enviro Care. The project activity is located in Himmatnagar, Gujarat, India.

The project involves installation of 2475 nos, of Monocrystalline Solar modules of make Axitec with capacity of 400Wp capacity and 10 nos. of 82.8 kW inverters make Solar Edge with a total of installation capacity of 828 kW (AC). The details of the project activity are verified with the PCN V2.0/21/, MR V3.0/20/ and relevant documents submitted for verification as mentioned in appendix-2.

The electrical power generated by the PV array is fed into the load. If the load demand is more than the SPV generation, the balance between SPV power and demand of power at the load end is met by drawing it from the grid. When the load is below the solar generation, excess SPV power will be fed to the grid line. The Solar Grid system works in synchronization with the Grid power.

The technical specification is listed below;

Description	**Information**
Total number of Photovoltaic Modules	2475
Rating of Photovoltaic Module	400 Wp
Modules make	Axitec
Module Type	Monocrystalline
No. of Inverter	10
Invertor Capacity	82.8 kW
Invertors make	Solar Edge
Output Voltage	415 V

As mentioned in the MR 3.0/21/ and emission reduction calculation sheet/11/ submitted for verification, the project replaces anthropogenic emissions of greenhouse gases (GHGs) estimated to be 2119 tCO_2e for the verification period, there on displacing 2355 MWh amount of electricity from the generation of fossil-fuel based power plants connected to the Indian electricity grid.

The project activity is a ground-mounted solar plant captive consumption renewable energy generation project having a capacity of less than 15 MW. The project is a small-scale activity. The methodology applied in the MR 3.0/21/ is verified against the AMS-I. F, Renewable electricity generation for captive use and mini-grid – Version 5.0/4/ total emission reductions (ERs) achieved through the project activity during the monitoring period is summarised below:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Project start date	15/06/2021
Start date of this Monitoring Period	15/06/2021
Carbon credits claimed up to	31/12/2022
Total ERs generated (tCO_2e)	2119
Leakage Emission	0
Project Emission	0

1.3 Project Verification team, technical reviewer and approver:

1.3.1 Project verification team

Sr. No.	Role	Last name	First name	Affiliation	Involvement in		
					Doc review	On-Site inspection	Interviews
1.	Team Leader & Technical Expert	Amin	Shardul	Naturelink Solutions Pvt. Ltd.	Yes	Yes	Yes
2.	Trainee Assessor	Prajapati	Divya	Naturelink Solutions Pvt. Ltd.	Yes	Yes	Yes

1.3.2 Technical Reviewer and Approver of the Verification report

Sr. No.	Role	Type of resource	Last name	First name	Affiliation
1.	Internal Technical Reviewer	IR	Shyam	Mandliya	Naturelink Solutions Pvt. Ltd.

2 Verification Process

The verification process is conducted as per UCR verification standard/3/, ISO 14064-3: 2019, and the applied methodology as the reference criteria which includes the following steps;

a. An agreement with the client and appointment of a verification team and technical review team
b. Desk review
c. On-site audit
d. Follow-up activities e.g., interviews
e. Reporting and closure of findings (CARs/CLs/FARs)
f. Preparation of draft verification report
g. Independent technical review of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
h. Reporting and closure of TR comments/findings (CARs/CLs/FARs) and
i. final approval for the decision
j. Issuance of final verification report to the contracted client.

2.1.1 Desk/document review

The verification team had done the completeness check of PCN /9/21/ and MR/10/19/20/ submitted by the PP as per the UCR CoU Standard/2/ requirements. Furthermore, a desk review was also carried out to assess the following:

- Information of project details in compliance with UCR PCN template
- Appropriateness of methodology applied by the PP to the project activity
- Compliance with relevant laws and regulations
- Correctness of application of baseline and monitoring methodology
- Monitoring plan described in the PCN/9/21/

The MR V1.0/10/ was initially reviewed and the PP was requested to submit the relevant documents along with the supporting information. The revised documents and additional supporting documents were further assessed by the verification team during desk review. The verification team has reviewed the final version of the PCN V2.0 /21/ and MR V 3.0/20/ to confirm that all changes agreed have been incorporated adequately.

The list of documents reviewed is available in a subsequent section of this verification report under the appendix - 2 “Document reviewed or referenced”.

2.1.2 Onsite Inspection

The verification team conducted onsite visit of project activity on 22/12/2023 as mentioned in the below table.

Date of on-site inspection:	22/12/2023			
No.	**Activity performed On-Site**	**Site location**	**Date**	**Project Personnel**

1.	Opening meeting	Project location	22/12/2023	Mr. Chirag Patel, Director, Ms. Natasha Rathore, Associate Consultant
2.	Visit to all installation location and document verification	Project location	22/12/2023	Mr. Dharmendra Joshi, Electrician, Mr. Jagdish Makwana. Supervisor, Himanshu Sharma, Logbook Maintainer, Ms. Natasha Rathore, Associate Consultant
3.	Closing meeting	Project location	22/12/2023	Mr. Chirag Patel, Director, Ms. Natasha Rathore, Associate Consultant

The following parameters were assessed but not limited to:

- An assessment of the implementation and operation of the registered project activity as per the registered PCN V1.0/9/.
- A review of information flows for generating, aggregating, and reporting the monitoring parameters;
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PCN V1.0/9/ and MR V2.0 /19/;
- A cross-check between information provided in the MR V2.0/19/ and data from other sources such as energy generation reports/13/, equipment details, purchase invoices/18/ or similar data sources;
- A cross-check of the monitoring equipment including calibration reports and observations of monitoring practices against the requirements of the PCN V1.0/9/ and MR V2.0/19/ and the applied methodology AMS I.D. version 18.0/22/;
- A review of calculations and assumptions made in determining the GHG emission reductions calculation/11/;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.1.3 Interviews

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.	Patel	Chirag	Director- Sidwin Fabric Pvt. Ltd.	13/09/2023	Legal ownership of the project, Implementation of the project, start date and crediting period, Double counting of the carbon credits
2.	Makwana	Jagdish	Supervisor - Sidwin Fabric Pvt. Ltd.	22/12/2023	Project boundary, Monitoring plan
3.	Joshi	Dharmendra	Electrician - Sidwin Fabric Pvt. Ltd.	22/12/2023	Electricity generation, meter reading, log book, meter calibration
4.	Savani	Dhaval	Project Engineer – Farmson Solar Power	22/12/2023	Installation and connection of the solar plant, Solar panel and inverter specification,
5.	Sharma	Himanshu	Logbook Maintainer, Sidwin Fabric Pvt. Ltd.	22/12/2023	Energy generation details and its procedure to log the reading
6.	Rathore	Natasha	Associate Consultant – Creduce Technologies Pvt. Ltd.	13/09/2023 and 22/12/2023	Project Overview, PCN, Monitoring Report, Methodology, eligibility criteria, Baseline emissions, Emission Reduction Calculation

2.1.4 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	NIL	NIL
Application and selection of methodologies and standardized baselines	--	--	--
• Application of methodologies and standardized baselines	NIL	01	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	02	NIL
• Monitoring Report	04	01	NIL
Start date, crediting period and duration	NIL	NIL	NIL
Environmental impacts	NIL	NIL	NIL
Project Owner- Identification and communication	01	NIL	NIL
Positive social impact	NIL	NIL	NIL
Sustainable development aspect	NIL	NIL	NIL
Others (please specify)	01	NIL	NIL
Total	06	04	NIL

3 Project Verification findings

3.1 Identification and eligibility of project type

Means of Project Verification	The project is eligible as per UCR General project eligibility criteria and guidance Version 6.0/2/ which is acceptable since the project has not been registered under any other GHG program and the energy generation has begun on 15/06/2021 which is also the commissioning date of the ground-mounted power plant involved in the project activity. The commissioning documents/14/ of the ground-mounted power plants involved in the project activity has been verified in this regard and found in order. Prior to the commencement of the project activity, the project owner got approval for the installation and operation of ground-mounted power plant from state energy development agency (GEDA) in their building premises and PO has signed inter-connection agreement with Uttar Gujarat Vij Company Ltd (UGVCL). The project delivered real, measurable and additional emission reduction of 2119 tCO_2e over the crediting period Project applies an approved CDM monitoring and baseline methodology AMS-I. F, Renewable electricity generation for captive use and mini-grid – Version 5.0./4/
Findings	None
Conclusion	The project is eligible as per the requirements of the UCR General project eligibility criteria and guidance Version 6.0/2/. Further project verification team cross checked the other GHG programmes like Clean Development Mechanism (CDM) Registry, VERRA Registry, Gold Standard (GS) Registry, and voluntary non-GHG Programs like I-REC, Renewable Energy Certificate (REC) Mechanism in India for the information regarding the consistency of the title of the project activity , GPS coordinates, legal Ownership of the Project activity and confirmed that the project was not submitted or registered under any other GHG programmes and non-voluntary non-GHG Programs.

3.2 General description of project activity

Means of Project Verification	The purpose of the project activity is to utilize clean energy to generate electricity which would be used to meet the electrical demand of the manufacturing facility of PP. The project owner installed 828 kW (AC) Solar Photovoltaic (SPV) panels on the ground. This consists of monocrystalline cells panels and associated

	connection boxes, Inverters, other field equipment. Thus, the project activity generated total 2355 MWh electricity and displacing 2119 tCO_2e. In the absence of the project activity the PO was importing the required electricity from the NEWNE grid to meet its requirement of electrical energy. The NEWNE Indian grid which is dominated by fossil fuel grid connected power plants. The electricity generated from solar plant is consumed by manufacturing facility and injected to the grid of the distribution utility under the mechanism of net metering if any surplus electricity is available after meeting their own consumption. The Location details has been verified during the onsite visit and geo coordinates verified through google earth/maps and found to be correct. The project activity installed 2475 nos. of monocrystalline modules of Axitec make panels of and associated connection boxes, inverters, and other equipment in the project premises. The technical details of solar panels and inverters provided in PCN V2.0/21/ and MR V 3.0 /20/ have been verified during the onsite visit and found in order. The project owner declared in the PCN V2.0/21/ the lifetime of the project activity is 25 Years as guaranteed by the suppliers of PV panels of the project activity and the same has been verified in the technical data provided by the project owner and found acceptable. The project activity described and applied AMS-I.F.: Renewable electricity generation for captive use and mini-grid - Version 5.0 /4/ falls into the small-scale category as per CDM methodology.
Findings	None
Conclusion	The description of the project activity is verified to be true based on the review of PCN V2.0/21/, MR V3.0/20/, Commissioning Certificate/14/, and purchase invoice copies/18/ of solar plant equipment.

3.3 Application and selection of methodologies and standardized baselines

3.3.1 Application of methodology and standardized baselines

Means of Project Verification	The project activity applied AMS-I.F.: Renewable electricity generation for captive use and mini-grid - Version 5.0 /4/ falls into the small-scale category as per CDM methodology. Standardized baseline is “In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to being predominantly sourced

	from fossil fuel-based power plants" which is as per the project activity and clearly mentioned in PCN V2.0/21/ and MR V3.0 /20/.
Findings	CAR 01 was raised
Conclusion	The methodology applied is appropriately meeting the requirements of UCR General project eligibility criteria and guidance/2/, standardized baseline. The methodology version is correct and valid. The referenced methodology is applicable to project activity.

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

Means of Project Verification	**Applicability as per AMS I.F version 5.0**	**Verifier assessment**
	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e., in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below: a) A national or a regional grid (grid hereafter). b) Fossil fuel fired captive power plant. c) A carbon intensive mini grid.	The proposed project activity "990 kW ground-mounted project by M/s. Sidwin Fabric Pvt. Ltd" which incorporates installation and operation ground-mounted solar photovoltaic power generation for captive consumption. a) Is applicable as in the absence of the project activity the total electricity requirements by the manufacturing facility was drawn from grid and not produced from fossil fuel fired on-site captive power plant. This fact was confirmed during the onsite visit and through document review of historical records of electricity bills.
	Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) applies is included in Table 3.	This is the renewable power generation activity and the generated electricity from these installations used for captive consumption for the manufacturing facility of PO. This resembles the scenario listed at Sr. No. 2 of the Table No. 2 of the methodology and hence the methodology, AMS-I. F is applied appropriately
	In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added	No capacity addition in the existing renewable plant. This is new installation of Solar PV modules on the ground-mounted of manufacturing facility of PO which

	capacity of the units added by the project should be lower than 15 MW and should be physically distinct6 from the existing units.	was verified and confirmed through onsite verification and interviewed with project owner and their representatives.
	In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	There is not retrofit or replacement Hence it is not applicable.
	If the unit added has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity does not have a non-renewable component. Hence this criterion is not applicable.
	Combined heat and power (co-generation) systems are not eligible under this category.	The project activity does not involve co-generation. Hence this criterion is not applicable.
	Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: a. The project activity is implemented in an existing reservoir with no change in the volume of reservoir; b. 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, is greater than 4 W/m^2. b. The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m^2	This criterion is not applicable as the project activity is the installation of solar PV Panels to generate electricity in the ground-mounted of the manufacturing facility of PO.
	If electricity and/or steam/heat produced by the project activity is delivered to a third party, i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures	The electricity generated by the Ground-mounted solar power plant is consumed by manufacturing facility of PO and injected to the grid of the distribution utility under the mechanism of net metering if any surplus electricity is available

	that there is no double counting of emission reductions.	after meeting their own consumption.
	In the case the project activities utilize biomass, the "TOOL16: Project and leakage emissions from biomass" shall be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues.	The project is solar power project, and it is not applicable.
Findings	No finding was raised	
Conclusion	The verification team confirms that all the applicability criteria set by the applied CDM methodology/4/ and its eligible tools are met. The relevant information against those criteria is also included in the PCN V2.0/21/ and MR V3.0 /20/. The selected CDM methodology for the project activity is applicable.	

3.3.3 Project boundary, sources and GHGs

Means of Project Verification	As per the applied methodology AMS-I. F version 5.0/4/, the spatial extent of the project boundary includes industrial, commercial facilities consuming energy generated by the system. The components of the project boundary mentioned in the section B.4 of PCN 2.0/21/ were found to be in compliance with para 18 of the applied methodology. The project verification team conducted desk review of the implemented project to confirm the appropriateness of the project boundary identified. The project verification team confirmed that all GHG sources required by the methodology have been included within the project boundary. It was assessed that no emission sources related to project activity will cause any deviation from the applicability of the methodology or accuracy of the emission reductions. The project location is clearly depicted with the help of a pictorial depiction in section A.3. of the PCN V2.0/21/ and duly verified by the project verification team via geographical coordinates, commissioning certificate/14/ of the project activity & inter connection agreement/12/ between M/s Sidwin Fabric Pvt. Ltd. and UGVCL which is found to be acceptable and appropriate.
Findings	None
Conclusion	The project verification team has assessed complete information regarding the project boundary provided in PCN V2.0/21/ and MR V3.0 /20/ and verified the evidence from the single line diagram/17/,

	commissioning certificate/14/, geographical coordinates and Interconnection agreement/12/ The project verification team confirms that the identified boundary, and selected emissions sources are justified for the project activity.

3.3.4 Baseline scenario

Means of Project Verification	The baseline scenario as per paragraph 19 of the applied methodology, prescribed the baseline scenario of the project activity. In the absence of the project activity, the users would have been supplied electricity from the national grid. As per paragraph 19 Baseline emissions for other systems are the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor from the available options of calculation of emission factor as mentioned in AMS-I.F /4/.
Findings	None
Conclusion	The project verification team concluded that the identified baseline scenario reasonably represents what would have occurred in the absence of the project activity. The calculated baseline emission for each vintage year of crediting period is rounded down as per UCR CoU verification standard /3/.

3.3.5 Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	The project verification team checked whether the equations and parameters used to calculate GHG emission reductions or net anthropogenic GHG removals for PCN 2.0/21/ and MR 3.0/20/ is in accordance with applied methodology. Project Verification team checked section B.5 and C.5.1 of the PCN 2.0/21/ and MR 3.0/20/ respectively to confirm whether all formulae to calculate baseline emissions, project emission and leakage have been applied in line with the underlying methodology. The emission reduction calculation has been done as per the CDM SSC methodology AMS-I.F., Version 5.0/4/. $BE_y = EG_{BLy} \text{ X } EF_{CO2,y}$ Where, BE_y = Baseline Emissions in year y; tCO_2 EG_{BLy}= Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh) $EF_{CO2,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y.

Project emissions:

As per paragraph 25 of the applied methodology, For most renewable energy project activities, $PE_y = 0$. Since Solar power is a GHG emission free source of energy project emission considered as Zero for the project activity

Leakage Emissions:

As per the paragraph 29 of the applied methodology AMS I.F Version 5.0, there are no emissions related to leakage in this project.

As per the general project eligibility criteria and guidance/2/; "The project owner has opted UCR recommended emission factor of 0.9 tCO_2/MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Emission factors for the post 2020 period is to be selected as the most conservative estimate between the national electricity/power authority published data set and UCR default of 0.9 tCO_2/MWh".

Emission reductions

As per Paragraph 30 of the applied methodology, emission reductions are calculated as follows

$ER_y = BE_y - PE_y - LE_y$

Where:

ER_y = Emission reductions in year y (tCO_{2e}/y)

BE_y = Baseline Emissions in year y (t CO_2/y)

PE_y = Project emissions in year y (t CO_2/y)

LE_y = Leakage emissions in year y (t CO_2/y)

Year	Electricity generated (kWh)	Emission factor (tCO_2/MWh)	Total Emission reduction (tCO_2e)
2021	743435	0.9	669
2022	1611937	0.9	1450
Total	2355372	0.9	2119

Findings

CAR 02 and 03 were raised

Conclusion

The combined margin emission factor as per CEA database "CO_2 Baseline Database for the Indian Power Sector" current version 18, December 2022/6/ is 0.918 tCO_2/MWh which results into higher emission factor than the UCR recommended emission factor of 0.9 tCO_2/MWh; Hence for 2022 vintage UCR default emission factor remains conservative as per UCR General project eligibility criteria and guidance/2/.

Project Verification team confirms that the algorithms and formulae proposed to calculate project emissions, baseline emissions, leakage and emission reductions in the PCN V2.0/21/ and MR V3.0/20/ is in line with the requirements of the selected methodology AMS I.F, version 05.0/4/

	For emission reduction calculation, the assessment team confirms that All assumptions and data used by the project participants are listed in the PCN V2.0/21/ and MR V3.0/20/ including their references and sources. All information used by project participants as the basis for assumptions and source of data is correctly defined and interpreted in the PCN V2.0/21/ and MR V3.0/20/ The baseline methodology and the applicable tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions.

3.3.6 Monitoring Report

<table>
<tr><td>Means of Project Verification</td><td>The MR V3.0 /20/ submitted by the PP has been verified thoroughly and is in compliance with the applicable methodology and UCR General project eligibility criteria and guidance/2/ for calculation of GHG emission reductions.

The assessment team has reviewed all the parameters in the monitoring plan against the requirements of the applied methodology/4/ and confirmed that monitoring parameters are applied in line with the requirement of the methodology and relevant in the context of the program. The procedures have been reviewed by the assessment team through document review, interviews with the respective monitoring personnel and onsite assessment. Monitoring methodology, data management and calibration of the energy meter were also discussed with project owner.

Calibration of Energy meter is carried out by NABL Accredited UGVCL Hi-tech laboratory which is found to be appropriate.
<table>
<tr><td>Sr. no.</td><td>Meter No.</td><td>Class</td><td>Calibration date</td></tr>
<tr><td>1.</td><td>UHM042B</td><td>0.2 s</td><td>30/01/2021</td></tr>
</table>
</td></tr>
<tr><td>Findings</td><td>CL 01-04 and CAR 04 were raised</td></tr>
<tr><td>Conclusion</td><td>The project verification team confirms that,

the MR V3.0/20/ is in compliance with the applicable methodology/4/ and UCR General project eligibility criteria and guidance/2/.

The monitoring parameters reported in PCN V2.0/21/ and MR V3.0/20/ adequately represents the parameters relevant to emission reduction calculation.

The calibration report/16/ ensures the accuracy of the data reported.</td></tr>
</table>

	The number of CoUs generation is calculated based on accurately reported data. The calculation was done using an excel sheet where all the parameters were reported. UCR recommended emission factor for electricity generation is opted which is conservative. In the MR V3.0/20/ emission reduction calculations sheet/11/ are correctly calculated and reported. The MR V3.0/20/, meets the requirements of UCR project verification requirements /3/.

3.4 Start date, crediting period and duration

Means of Project Verification	The Commissioning certificate/14/ of the installation of the project activity has been verified as per PCN V2,0/21/ and MR V3.0/20/.
Findings	None
Conclusion	The expected lifetime of the project activity is 25 years which is verified by the technical specification/10/. Crediting period for the agreed verification is from 15/06/2021 to 31/12/2022 which is appropriate as per UCR General project eligibility criteria and guidance/2/.

3.5 Environmental impacts and safeguard assessment

Means of Project Verification	As The guidelines on Environmental Impact Assessment have been published by Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India (GOI) under Environmental Impact Assessment notification 14/09/2006/49/. Further amendments to the notification have been done, The Solar Power projects up to 25 MW are listed in white category, hence the No EIA required. The impact of the project activity on the environmental safeguards has been carried out. Out of all the safeguards no risks were identified to the environment due to the project implementation and operation. And the following have been indicated as positive impacts: Environment Air - CO_2 emissions: The project activity being renewable power generation avoids CO_2 emissions that would have occurred in baseline scenario due to the electricity generation in thermal power plants. Environment - Natural Resources: Replacing fossil fuels with renewable sources of energy. Impacts identified as 'Harmless': Solid waste Pollution from E- waste: - Any E-waste including broken panels and batteries if generated from the plant shall be discarded

	in accordance with host country regulation. The parameter is being monitored as 'Project Waste' and Proper mitigation action has been implemented for waste management. Land use: since the solar plant is ground-mounted in the PO premises; no land is harmed due to the project activity. Emission due to transportation of solar panels: The emissions associated with transport of the modules are insignificant compare to manufacturing facilities. Solid waste Pollution from end-of-life products equipment: - Waste generated from the plant.
Findings	No findings raised.
Conclusion	The project activity displaces fossil fuel consumption and provides affordable and clean energy. The project has also avoided total 2119 tCO_2e, hence it has positive impact.

3.6 Project Owner- Identification and communication

Means of Project Verification	The information and contact details of the project owner has been appropriately incorporated in the MR V3.0/20/ and PCN 2.0/21/ which was checked. The legal owner of the project activity has been identified through the commissioning certificate/14/, inter connection agreement/12/, and purchase invoice/18/ issued by equipment suppliers.
Findings	CL 05 was raised.
Conclusion	The project verification team confirms that the legal ownership of the project belongs to M/s. Sidwin Fabric Pvt. Ltd.

3.7 Positive Social Impact

Means of Project Verification	NA
Findings	--
Conclusion	--

3.8 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

3.9 Others (DAA)

Means of Project Verification	The verification team has referred other GHG program and IREC mechanism to avoid double counting of emission reduction
Findings	CL 06 was raised.
Conclusion	It was verified that the project is has not applied for registration and issuance elsewhere and provided the agreement/8/ stating not taking benefits of double counting.

4 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.

5 Project Verification opinion:

The project verification was conducted on the basis of UCR Program Manual/1/, UCR General project eligibility criteria and guidance/2/, UCR Verification standard /3/, AMS -I.F. -Renewable electricity generation for captive use and mini-grid, version 5.0./4/, Inter connection agreement/12/, Purchase invoice/18/, Calibration Report/16/, Commissioning Certificate/14/, Project Concept Note (PCN)/21/, Monitoring Report (MR)/20/ and documents mentioned in Appendix-2.

Verification team raised 06 Nos. of Clarification Requests (CLs) and 04 Nos. of Corrective Actions Requests (CARs) and all the queries were closed satisfactorily.

It is hence certified with reasonable level of assurance that the emission reductions from the project 990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd (UCR ID – 262) for the period 15/06/2021 to 31/12/2022 amounts to **2119** CoUs (2119 tCO_2e) as per the UCR Verification standard /3/.

6 Competence of team members and technical reviewers

No.	Last name	First name	Role and Affiliation	Technical Competence
1.	Amin	Shardul	Team Leader and Technical Expert - NSPL	Mr. Shardul Amin holds M.Tech degree 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 is experienced GHG Auditor and has verified more than 50 emission reduction projects.
2.	Prajapati	Divya	Trainee Assessor - NSPL	Ms. Divya Prajapati is having M. Tech. In Environmental Engineering. She is experienced in performing environmental impact assessments of various industries. She has also conducted Environmental Audit of CETP and TSDF sites and quantified GHG emissions from Solid Waste Disposal sites.
3.	Mandliya	Shyam	Technical Reviewer - NSPL	Mr. Shyam Mandliya holds master's degree 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.

Appendix 1: Abbreviations

Abbreviations	Full texts
UCR	Universal Carbon Registry
CPCB	Central Pollution Control Board
GERC	Gujarat Electricity Regulatory Commission (GERC)
GEDA	Gujarat Energy Development Agency
UGVCL	Uttar Gujarat Vij Company Limited.
CEA	Central Electricity Authority
NSPL	Naturelink Solutions Private Limited
MR	Monitoring report
PCN	Project Concept Note
VR	Verification Report
VS	Verification Statement
DAA	Avoidance of Double Accounting Agreement
COD	Commercial Operation Date
PO	Project Owner
PA/ PP	Project Aggregator / Project Proponent
PPA	Power Purchase Agreement
ER	Emission Reduction
CoUs	Carbon offset Units
tCO_2e	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

Appendix 2: Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UCR	UCR Program Manual	Version 4.0, August 2022	UCR website
2.	UCR	UCR General project eligibility criteria and guidance (CoU Standard)	Version 6.0, August 2022	UCR website
3.	UCR	UCR Program Verification standard	Version 2.0, August 2022	UCR website
4.	CDM	AMS-I. F – "Renewable electricity generation for captive use and mini-grid"	Version 05.0	CDM website
5.	CEA	Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2019	Dated 23/12/2019	-
6.	CEA	CO_2 baseline database for the Indian Power sector	Version 18.0 dated December 2022	-
7.	PA	Communication agreement between PP and PO	Dated 23nd November, 2021	PA
8.	Creduce	Assurance to avoid double accounting by project owners	Double accounting agreement signed on 28/07/2023	PA
9.	Creduce	PCN V 1.0	PCN titled "990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd" V 1.0 dated 14/12/2022	PA
10.	Creduce	MR V 1.0	MR titled "990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd" V 1.0 dated 01/09/2023	PA
11.	Creduce	Emission reduction excel – "990 kW ground-mounted solar project by M/S Sidwin Fabric Pvt. Ltd"	Version 1.0 dated 01/09/2023	PA
12.	UGVCL & PO	Inter connection agreement for captive use	Inter Connection agreement: GUJ/SOS/AUTH/AV/297/2010	PA

No.	Author	Title	References to the document	Provider
13.	UGVCL	Solar Monthly Generation details	Calculation of Solar Adj. Unit & Amt. for the period of 15/06/2021 to 31/12/2022 for the consumer no. 33380	PO
14.	Farmson Solar	Project Commissioning and installation certificate	Project Completion Letter dated 15/06/2021 by M/s Farmson Enviro Care	PA
15.	Farmson Solar	Technical specification	Proposal No: FEC/ Rooftop/286/20-21-R2 dated 02/10/2020	PA
16.	UGVCL Hi Tech Laboratory	Meter test reports	TEST REPORT NO. BCS/CTPT-T/N/21 / 005 dated 08/02/2021 and Test Report No: HMVT/21-O1156571O1 dated 30/01/2021	PA
17.	Farmson Solar	Single Line Diagram	Drawing No. - FS-SFP-20/21-R01titled - 990.00 kWp ON GRID SOLAR PV PLANT	PA
18.	Farmson Solar	Purchase Invoice	Invoice: P/339/20-21	PA
19.	Creduce	MR V 2.0	MR titled “990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd” V 2.0 dated 03/10/2023	PA
20.	Creduce	MR V 3.0	MR titled “ 990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd” V 3.0 dated 30/12/2023	PA
21.	Creduce	PCN 2 .0	PCN titled “990 kW Solar Ground Mounted Power Project By M/s Sidwin Fabric Pvt. Ltd” V 2.0 dated 25/12/2023	PA
22.	CDM	AMS I D	Version 18.0	--
23.				
24.				

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

Table 1. CLs from this Project Verification

CL ID	01	**Section no.: 3.3.6**	Monitoring Report	**Date:** 19/09/2023
Description of CL				
MR V1.0, Section C.10 Monitoring Plan $EG_{PJ,facility,y}$; source data is missing against the requirement mentioned in Clause 6 AMS.I.D, V 18.0 and UCR CoU Standard V. 6.0, page 8.				
Project Owner's response				**Date:** 03/10/2023
PP has revised the information and provided the source data from where energy generation is logged				
Documentation provided by Project Owner				
MR V2.0 dated 03/10/2023				
UCR Project Verifier assessment				**Date:** 26/02/2024
The energy generation is calculated from the monthly energy metering readings and cross checked with the energy generation report provided by UGVCL and hence this issue has been closed.				

CL ID	02	**Section no.: 3.3.6**	Monitoring Report	**Date:** 19/09/2023
Description of CAR				
Section C.10, MR, V1.0 dated 01/09/2023, energy meter and calibration details are not provided in the monitoring plan as per the requirements mentioned in Clause 6 AMS.I.D, V 18.0 and UCR CoU Standard V. 6.0, page 8.				
Project Owner's response				**Date:** 03/10/2023
PP has incorporated the ABT meter information and its calibration frequency in MR V 2.0				
Documentation provided by Project Owner				
MR V2.0 dated 03/10/2023				
UCR Project Verifier assessment				**Date:** 26/02/2024
The evidence submitted by the PP has been accepted and found to meet the requirement of the applicable methodology				

CL ID	03	Section no.: 3.3.6	Monitoring Report	Date: 19/09/2023
Description of CAR				
Section C.10, MR, V1.0 dated 01/09/2023 the reference external link provided does not show any documents or information comprising the energy meter calibration frequency against the requirement mentioned in Clause 6, AMS.I.D, V 18.0 and UCR CoU Standard V. 6.0, page 8.				
Project Owner's response				**Date:** 03/10/2023
PP has provided the link and the relevant CEA guidelines for the meter calibration.				
Documentation provided by Project Owner				
"Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2019"				
UCR Project Verifier assessment				**Date:** 26/02/2024
Meter calibration details were clearly identified from the document submitted by the PP and hence this issue is closed.				

CL ID	04	Section no.: 3.3.6	Monitoring Report	Date: 19/09/2023
Description of CAR				
Meter calibration Test Report No: HMVT/21-O1156571O1 does not include complete meter testing result as per UCR CoU Standard V. 6.0, page 8				
Project Owner's response				**Date:** 03/10/2023
The scan copy of missing page of calibration has been provided				
Documentation provided by Project Owner				
Meter calibration Test Report No: HMVT/21-O1156571O1				
UCR Project Verifier assessment				**Date:** 26/02/2024
The meter test reports include all the results and errors are within permissible limits and hence this issue is closed				

CL ID	05	Section no.: 3.6	Project Owner Identification and communication	Date: 19/09/2023
Description of CAR				

PP shall provide organizational structure, roles, and responsibilities of personnel, and emergency procedures for the (information flow including data generation, aggregation, recording, calculations, and reporting) as per UCR CoU Standard V. 6.0, page 8.
Project Owner's response **Date:** 03/10/2023
PP has provided the diagram mentioning the roles and responsibilities relevant to solar power plant
Documentation provided by Project Owner
Name and designation of the relevant personnel maintain the solar plant.
UCR Project Verifier assessment **Date:** 26/02/2024
The details of the PP's organizational structure is defined and documents were shared and hence this query has been resolved.

CL ID	06	**Section no.: 3.9**	Others (DAA)	**Date:** 19/09/2023
Description of CAR				
An agreement stating that the project activity will not cause double counting as per clause 1.8, Universal Carbon Registry Program Manual (Ver 4.0) August 2022.				
Project Owner's response **Date:** 23/11/2023				
The PP has provided the DAA agreement				
Documentation provided by Project Owner				
DAA dated 28/07/2023				
UCR Project Verifier assessment **Date:** 26/02/2024				
The PP has submitted the signed and stamped copy of DAA and hence this query has been closed.				

Table 2. CARs from this Project Verification

CAR ID	01	**Section no.: 3.3.1**	Application of methodology and standardized baseline	**Date: 23/12/2023**
Description of CAR				
The methodology applied in section A.4 and C.2, MR V2.0 dated 03/10/2023 and Section B.1, PCN V1.0 dated 14/12/2022 does not match against the scope defined in Clause 2.1, para. 2, AMS.I.D -V 18.0. The PP shall apply the correct methodology.				
Project Owner's response Date: 30/12/2023				

The PP has revisited the methodology requirement and applied the new methodology AMS I F Version 5.0.
Documentation provided by Project Owner
MR V 3.0 dated 30/12/2023
UCR Project Verifier assessment | Date: 26/02/2024
The PP has applied the AMS I-F. V 5.0 where surplus generation is transferred to the grid. The verifier has concluded that the PP has applied relevant methodology in MR V3.0 and the query has been closed.

CAR ID	02	**Section no.: 3.3.5**	Estimation of emission reduction or net anthropogenic removal	**Date:** 19/09/2023
Description of CAR				
1. *In Section C.5.1, MR, V 1.0 dated 01/09/2023, annual baseline emission and emission reduction units are not written appropriately as per Clause 5.8, AMS.I.D, V 18.0.* 2. *In Section C.5.1, MR, V1.0 dated 01/09/2023, Leakage emission is not correctly defined as per Clause 5.7 AMS.I.D, V 18.0*				
Project Owner's response | Date: 03/10/2023				
The PP has made correction and submitted revised MR for verification				
Documentation provided by Project Owner				
MR V2.0 dated 03/10/2023				
UCR Project Verifier assessment | Date: 26/02/2024				
The PP has made the correction as per the requirements. The baseline and leakage emissions are defined correctly and hence this query has been resolved.				

CAR ID	03	**Section no.: 3.3.5**	Estimation of emission reduction or net anthropogenic removal	**Date:** 19/09/2023
Description of CAR				
The emission factor is not correctly defined in clauses B.5 and B.10: PCN, V 1.0 dated 14/12/2022 as per UCR CoU Standard ver. 6.0, page 4				
Project Owner's response | Date: 03/10/2023				
The PP has corrected the emission factor as per UCR standard and submitted the revised PCN.				
Documentation provided by Project Owner				
PCN V2.0 date 29/09/2023				
UCR Project Verifier assessment | Date: 26/02/2024				

The PP has corrected the details. The information is found to be correct and hence this issue has been closed.

CAR ID	04	**Section no.: 3.3.6**	Monitoring Report	**Date:**
Description of CAR				
The energy meter details provided by PP are not being used to log and maintain the electricity generation from this solar plant. The PP shall provide the correct source data in Section C.10, MR V2.0 dated 03/10/2023 to verify the quantity of net electricity the project plant generates as per the requirements mentioned in Clause 6 AMS.I.D -V 18.0.				
Project Owner's response				**Date:** 30/12/2023
There are two meters from where the energy generation from solar can be identified. One is solar meter and second is bi-directional meter.				
Documentation provided by Project Owner				
MR V 3.0 dated 30/12/2023				
UCR Project Verifier assessment				**Date:** 26/02/2024
The PP has provided the meter sr.no UHM042B photos, calibration report and energy generation sheet. The verifier has found the evidence to be correct and hence this query has been closed successfully.				

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				