Project Verification Report

2021

COVER PAGE Project Verification Report Form (VR)	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	Mr Sanjay Kandari (Independent Verifier)
Type of Accreditation	☐ CDM or other GHG Accreditation ☐ ISO 14065 Accreditation ☒ Individual Verifier Approved by UCR and Having the CDM/GHG and ISO14064 experience
Approved UCR Scopes and GHG Sectoral scopes for Project Verification	Scope: 1 Energy Industries (Renewable/Non-Renewable)
Validity of UCR approval of Verifier	10/01/2022 Onward
Completion date of this VR	19/07/2023
Title of the project activity	7.9 MW Biomass based Cogeneration Project at Hardoi, Uttar Pradesh.
Project reference no. (as provided by UCR Program)	210

Name of Entity requesting verification service (can be Project Owners themselves or any Entity having authorization of Project Owners, example aggregator.)	DCM Shriram Ltd (Distillery Unit Hariawan) (DEVELOPER)
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Village: Hariawan Village District: Hardoi State: Uttar Pradesh Country: INDIA Code: 241405
Country where project is located	India
Applied methodologies (Approved methodologies by UCR Standard used)	CDM UNFCCC Methodology ACM0006: Electricity and heat generation from biomass (Ver. 16)
GHG Sectoral scopes linked to the applied methodologies	Scope: 1 Energy Industries (Renewable/Non-Renewable)
Project Verification Criteria: Mandatory requirements to be assessed	☒ UCR Standard ☒ Applicable Approved Methodology ☒ Applicable Legal requirements /rules of 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 Project Verifier [*Sanjay Kandari*], certifies the following with respect to the UCR Project Activity [7.9 MW Biomass based Cogeneration Project at Hardoi, Uttar Pradesh] ☒ The Project Owner has correctly described the Project Activity in the Project Concept Note (dated *26/07/2022*) including the applicability of the approved methodology [*CDM Methodology ACM0006: Electricity and heat generation from biomass (Ver. 16)"*] 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 [*159,680*]

	tCO_{2e}/year, as indicated in the PCN, 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[1] and therefore recommends UCR Program to register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	UCR Ref. No. 210 Approved 26/07/2022
Name of the authorised personnel of UCR Project Verifier and his/her signature with date	 Sanjay Kandari 19/07/2023

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PROJECT VERIFICATION REPORT

Executive summary

>> Sanjay Kandari (Individual Verifier) has been commissioned by "DCM Shriram Limited" to perform an independent UCR verification of its project, "7.9 MW Biomass based Cogeneration Project at Hardoi, Uttar Pradesh", UCR ref. no. 210 for the reported GHG emission reductions for the given monitoring period from 19/02/2018 to 31/12/2022 (both dates included). The UCR projects must undergo independent third-party verification and certification of emission reductions as the basis for issuance of 'Carbon Offset Units' (CoU).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered PCN[4/] and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

a) The registered PCN, including the monitoring plan and the corresponding validation opinion(s);
b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
c) Monitoring report for the monitoring period under verification including CoU calculations sheets and all supporting documents;
d) The applied monitoring methodology
e) Relevant decisions, clarifications and guidance from the UCR;
f) All information and references relevant to the project activity, resulting in emission reductions;
g) The project is assessed against the requirements of the UCR.

Verifier has, based on the recommendations in the latest version of UCR requirements for project activity, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Description of project:

The project activity is a biomass based cogeneration plant installed of total capacity 7.9 MW, located in Village: Hariawan District: Hardoi Uttar Pradesh of India. The project activity is promoted by DCM Shriram Ltd (Distillery Unit Hariawan) (henceforth referred as DCM). The purpose of the project activity is to install one 55 TPH biomass fired boiler and a 7.9 MW turbine to cater the electricity and steam demand of distillery unit of DCM. Surplus power generated from the system exported to grid. Commissioning certificates/8/ verified by the verification team to confirm the date of commissioning of the project site. The project was found implemented and operated in line with the information provided in the monitoring report and also was also verified during the onsite assessment.

Project Verification team, technical reviewer and approver

Project Verification team

No.	Role	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)	Involvement in		
					Doc review	Off-Site inspection	Interviews
1.	Team Leader	Kandari	Sanjay	UCR Project Verifier	√		√

Means of Project Verification

Desk/document review

The project activity has supplied 1,108,828.2 MT/12/ of process steam and generated 202.778 GWh (Gross generation) in this crediting period both for captive consumption and grid export. In absence of this project, equivalent amount of steam would have been sourced from a fossil fuel (i.e. Coal) fired boiler and electricity would have been sourced from grid which is mainly dominated by fossil fuel. The project activity, for this monitoring period, thus reduces 347,673 t-CO_2e greenhouse gas emissions (GHG) collectively by avoiding fossil fuel combustion for steam, power usages from grid and surplus green power supplied to the grid which is 55% less than the ex-ante estimation i.e., 776,964 t-CO_2e/2/.

Through document review in conjunction with the interview with the plant personnel, the verification team confirms that all physical features of the project activity including technology, data collection systems and storage systems have been implemented in accordance with the revised project design document.

Details of the installed major equipment are as below verified by the verification team during the onsite assessment:

Boiler:

Parameter	Unit	Details
Type of boiler	-	Biomass TG Boiler
Boiler rated capacity	TPH	55
Steam Pressure	kg/cm2	45
Steam Temperature	Deg. C	400 +/- 5
Feed water Temperature	Deg. C	150
Fuel Type	-	Bagasse and other biomass residue

Turbines:

Parameter	Unit	Details
Type of turbine	-	STG Turbine
Inlet steam pressure	kg/cm2	42.5
Inlet steam temperature	Deg. C	395
Inlet steam quantity	TPH	54.6
Extraction pressure	kg/cm2	5.25
Extraction steam quantity	TPH	47.1

Alternator:

Parameter	Unit	Details
Type	-	4 pole synchronous generator
Rated Capacity	MW	7.9
Rated power factor	-	0.8
Generation voltage	V	11000
Frequency	Hz	50

The monitoring equipment energy meters, flow meters, weigh bridge, temperature gauge, pressure gauge etc were found to be installed at the respective places as observed during the onsite assessment.

The verification team has reviewed the commissioning certificates, technical specifications of boiler & turbine set to confirm that the power from the project activity is being supplied to the grid in compliance to the applied methodology ACM0006, version 16.

The power from the project activity is being sold to the local DISCOM (Distribution Company) in Uttar Pradesh state of India where the project activity is implemented. Verification team has reviewed the copies of 'Joint Meter Readings'/11/ and invoices raised by the project proponent to confirm the same.

The installed equipment such as boiler, turbine generator, transformers, and meters (location, serial number, class, manufacturer, etc.) were verified from the photographic evidences and found to be consistent with the information provided in the MR.

The project boundaries and all key equipment are in line with the registered PCN. The verification team confirmed during the onsite audit by physical inspection that the UCR project is completely operational and the name plate details of all key equipment are in line to the registered PCN/3/.

The details of operation of the project activity were cross checked through interviews and found consistent. No major breakdowns have been observed during the monitoring period which has not affected the applicability of the applied methodology as reported in the MR.

The allocation of the responsibilities is followed as described in the registered PCN/3/. Routines for the data archiving are defined and documented. Calculations laid down in the monitoring report are in line with registered PCN/3/.

Interviews were carried out with the plant personals during the audit to verify the actual monitoring system practiced by PO. It was found that the plant personals are aware of their roles & responsibilities.

The actual monitoring system practiced for the monitoring period is in line with the monitoring plan provided in the registered PCN/3/.

The actual emission reductions are 347,673 tCO_2e for the current monitoring period,

On-site inspection

Date of on-site inspection: 27/02/2023			
No.	**Activity performed On-Site**	**Site location**	**Date**
1.	Implementation and operation of project activity (project boundary, technology, project equipment, monitoring and metering equipment) as per registered PDD/previous verification.	Hardoi, Uttara Pradesh	27/02/2023
2.	Management and monitoring procedures followed at project site.	Hardoi, Uttara Pradesh	27/02/2023
3.	Documentation, allocation of responsibilities, qualification and training, data recording & archiving, internal audit and management review and emergency procedures.	Hardoi, Uttara Pradesh	27/02/2023
4.	Compliance of monitoring procedures followed at project site with registered PDD and monitoring methodology.	Hardoi, Uttara Pradesh	27/02/2023

Interviews

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.	Sachan	SK	DGM_Electrical DCM	27/02/2023	Project Implementation, monitoring, Calibration, Energy Balance etc.
2.	Sexana	Ashish	Add. GM DCM	27/02/2023	Project Implementation, monitoring, Calibration, Energy Balance etc.
3.	Dhain	Puneet	Manager DCM	27/02/2023	UCR Requirements
4.	Sinha	Sandipan	Senior Consultant, First Climate India	27/02/2023	UCR Requirements
5.	Singh	Vinod	TG Operator, DCM	27/02/2023	Monitoring, shutdowns etc
6.	Prajapati	Dhirendra	Boiler Operator, DCM	27/02/2023	Monitoring, shutdowns etc
7.	Gupta	Govindam	Dy. Manager , DCM	27/02/2023	Project Implementation
8.	Surjan	Anoop	Dy. Manager (Electrical), DCM	27/02/2023	Project Implementation

Sampling approach

No sampling has been undertaken; full data set reviewed to arrive on a reasonable level of assurance.

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	-	*01*	-
General description of project activity	01	01	-
Application and selection of methodologies and standardized baselines	-	-	-
- Application of methodologies and standardized baselines	01	-	-
- Deviation from methodology and/or methodological tool	-	-	-
- Clarification on applicability of methodology, tool and/or standardized baseline	-	-	-
- Project boundary, sources and GHGs	-	-	-
- Baseline scenario	-	-	-
- Estimation of emission reductions or net anthropogenic removals	01	01	-
- Monitoring Report	-	-	-

Start date, crediting period and duration	-	-	-
Environmental impacts	-	-	-
Project Owner- Identification and communication	-	-	-
Others (please specify)	-	-	-
Total	03	03	00

Project Verification findings

Identification and eligibility of project type

Means of Project Verification	Verifier checked the monitoring report with “UCR Program Verification Guidance Document, version 01” mentioned and found the project meets all the requirements.
Findings	Nil
Conclusion	The project is renewable energy project and already registered with UCR, the requirements of UCR met for the project type.

General description of project activity

Means of Project Verification	The project activity is promoted by DCM Shriram Ltd (Distillery Unit Hariawan) in their distillery unit located at Village- Hariawan, Distt.- Hardoi- 241405, Uttar Pradesh, India. The purpose of the project activity is to install one 55 TPH biomass fired boiler and a 7.9 MW turbine to cater the electricity and steam demand of distillery unit of DCM and the surplus electricity is exported to the grid. The distillery unit demands both electrical and thermal energy to run the process. To meet the demand, plant has installed a biomass fired co-generation system at their facility. Plant has installed a 55 TPH biomass fired boiler which can generate superheated steam at a pressure of 45 kg/cm^2 pressure and 400ºC temperature. Superheated steam directly entered to a 7.9 MW turbine. After turbine, steam is being extracted for process use at a pressure of 5.25 kg/cm^2. To operate the plant, proponent could have used coal as a fuel in absence of the project activity as demonstrated in the PCN (Baseline scenario). Bagasse is considered as renewable biomass and surplus in the region of Uttar Pradesh. Owing to some operational barriers, plant has decided to operate the co-gen system with bagasse and other biomass residue to reduce the carbon emission caused by fossil fuels. The project was found implemented and operated in line with the information provided in the PCN. Through document review in conjunction with the interview with the plant personnel, the verification team confirms that all physical features of the project activity including technology, data collection systems and storage systems have been implemented in accordance with the project concept note approved by UCR for the verification. The total emission reduction achieved 347,673 CoUs (347,673 tCO_2eq) during the monitoring period are significantly lower than the estimated ERs i.e. 7,75,778 CoUs (7,75,778 tCO_2eq) in the PCN. The energy balance also undertaken by the PO to compute the crosscheck of the ERs calculated and verified correct by the verifier as per the applied methodological requirements.
Findings	CAR#01 & CAR#02 were raised and closed satisfactorily.
Conclusion	According to UCR Program Verification Guidance Document, version 1.0 for the verifier confirms that: a) The project activity is implemented as per the registered PCN, the project activity was fully commissioned at the time of verification. b) The actual operation of the UCR project activity is in line to the registered PCN, the power generated from the project activity is supplied to national grid through DISCOM. c) The actual emission reductions are lower than the expected emission reductions for the current monitoring period. Verifier has reviewed the registered PCN including the monitoring plan, the applied monitoring methodology, revised monitoring reports/2/, relevant decisions from UCR.

Application and selection of methodologies and standardized baselines

(.a.i) Application of methodology and standardized baselines

Means of Project Verification	The verifier was able to confirm that the monitoring plan contained in registered PCN and MR is in accordance with the approved CDM methodology applied for the project activity i.e. ACM0006: Electricity and heat generation from biomass (Ver. 16)
Findings	Nil
Conclusion	MR complies with the monitoring requirement of the applied approved methodology ACM0006: Electricity and heat generation from biomass (Ver. 16) in the context of the project activity.

(.a.ii) Clarification on applicability of methodology, tool and/or standardized baseline

Means of Project Verification	N/A
Findings	-
Conclusion	-

(.a.iii) Project boundary, sources and GHGs

Means of Project Verification	Project boundary is in line with the applied methodology.
Findings	Nil
Conclusion	Project boundary is in line with the applied methodology.

(.a.iv) Baseline scenario

Means of Project Verification	As per the applied methodology, ACM0006: Electricity and heat generation from biomass (Ver. 16), the baseline has been established in the approved PCN available on the UCR website. The baseline scenario has been established by the PO at the time of PCN approval is: "The biomass residues are dumped or left to decay mainly under aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields;"
Findings	Nil
Conclusion	The identification (assumptions and data used) of baseline scenario to the project has been correctly applied and is in accordance with applied methodology and justified, deemed reasonable and is based on objective evidences in context to the project activity.

(.a.v) Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	According to the approved methodology emission reductions are calculated as follows: $ERy = BEy - PEy - LEy$ Where: ERy = Emissions reductions in year y (t CO2)

BEy = Baseline emissions in year y (t CO2)
PEy = Project emissions in year y (t CO2)
LEy = Leakage emissions in year y (t CO2)"

As per paragraph 37 of methodology, "Baseline emissions are calculated as follows: $BEy = EL_{BL,GR,y} \times EF_{EG,GR,y} + \sum f FF_{BL},HG_{,y,f} \times EF_{FF,y,f} + EL_{BL,FF}/GR,y \times min(EF_{EG},_{GR,y},EF_{EG},FF,y) + BE_{BR},$y

Where: BE_y = Baseline emissions in year y (t CO_2)
$EL_{BL},,$ = Baseline electricity sourced from the grid in year y (MWh)
$FEG,,$ = Grid emission factor in year y (t CO2/MWh)
$FF_{BL},,,$ = Baseline fossil fuel demand for process heat in year y (GJ)
$EF_{FF},,$ = CO2 emission factor for fossil fuel type f in year y (t CO2/GJ)
$EL_{BL},/GR,y$ = Baseline uncertain electricity generation in the grid or on-site or off-site power-only units in year y (MWh)
$EF_{EG},,$ = CO2 emission factor for electricity generation at the project site or off-site plants in the baseline in year y (t CO2/MWh)
$BE_{BR},$= Baseline emissions due to disposal of biomass residues in year y (t CO2e)
f = Fossil fuel type" In absence of the project activity, electricity would have been sourced from the grid

Hence, $EL_{BL},,$ would be the sum of captive consumption of electricity and electricity supplied to the grid. Baseline uncertain electricity generation in the grid or on-site or off-site power-only units in year y (MWh) is not applicable for the project activity and the project activity does not account the emission due to disposal of biomass residue.

Hence, the baseline emissions for the project activity would be calculated a
$BEy = EL_{BL},_{GR,y} \times EF_{EG,GR,y} + \sum FF_{BL,,y,f} \times EF_{FF,y,}$

BE =137,609.37 x 0.9 + 2329.09 x 96.1

BE =347,673 tCO_2/year (Rounded off)

Summary of actual emission reductions:

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
2018	68,036.35	0	0	68,036.35
2019	58,942.28	0	0	58,942.28
2020	73,595.06	0	0	73,595.06
2021	64,963.54	0	0	64,963.54
2022	82,136.75	0	0	82,136.75
Total	347,673	0	0	347,673
Total number of crediting years	4 years 10 months 12 days			

Findings	CAR#03, CL#01 & CL#02 were raised and closed satisfactorily.
Conclusion	It is confirmed by the verifier that the CoU against all referenced data sources and the requirements of applied methodology and methodological tools that: a) All data sources and assumptions used are listed and referenced in the PCN and are appropriate. Calculations are correct, applicable to the proposed UCR project activity and will result in a conservative estimation of the emission reductions; b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PCN; c) All values used in the PCN are considered reasonable in the context of the proposed UCR project activity; d) The baseline methodology has been applied correctly to calculate project emissions, baseline emission, leakage emission and emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD and annexure.

(.a.vi) Monitoring Report

Means of Project Verification	Verifier checked the monitoring report with “Instructions for filling out the monitoring report form” mentioned as attachment to Monitoring report form (version 01.0).
Findings	No findings raised.
Conclusion	Verifier confirms that final monitoring report is completed using the latest valid version of the applicable monitoring report form.

Start date, crediting period and duration

Means of Project Verification	Start date of crediting period is in line with the commissioning certificates provided to the verifier, the date has been verified as 27/01/2018 from the commissioning and synchronization certificate. Start date of crediting period is 19/02/2018 and after the start of project activity.
Findings	No findings raised.
Conclusion	Verifier confirms that final monitoring report is states the correct crediting period and it is in line with the PCN on the UCR web

Positive Environmental impacts

Means of Project Verification	The project is resulting in a net carbon positive emission reduction (COUs) and same has been transparently reported in the submitted MR supported with the ER spreadsheet. The calculation is verified with the respective data sets. The verifier has reviewed the emission reduction (ER) spread sheet /2.2/ and checked all the formulae and verified them to be correct and in line with the monitoring plan of the registered PCN and the applied monitoring methodology /10/. All the monitored parameters are described in MR. All the ex-ante parameters which are used in the calculation of emission reduction are presented in in MR / transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation. Baseline emissions: Hence, the baseline emissions for the project activity would be calculated a $BEy = EL_{BL,GR,y} \times EF_{EG,GR,y} + \sum FF_{BL,,y,f} \times EF_{FF,y,}$ BE =137,609.37 x 0.9 + 2329.09 x 96.1 BE =347,673 tCO_2/year (Rounded off) It is noted that the formula and calculation used for baseline emission calculation in the monitoring report and ER sheet is in compliance with the registered PCN. The default values and data used in the monitoring report is in-line with the registered PD. Hence, acceptable to the verification team. PEy:0 (as the project emissions are not associated being the biomass based power was used in the project scenario) LEy=0 (as established by the P0 in the PCN,) ER_y = BE_y – PE_y – LE_y = 347,673 – 0 – 0 = 347,673 tCO_2e (i.e., 347,673 CoUs) As per the methodology and as defined in the registered PCN no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it is in compliance with the registered PCN. The following are the ex-ante parameters used in the ER calculation which are in compliance with registered PCN.
Findings	CL#03 was raised and closed.
Conclusion	Th project is resulting in a net carbon positive emission reduction (COUs) and same has been transparently reported in the submitted MR supported with the CoU spreadsheet.

Project Owner- Identification and communication

Means of Project Verification	PO has declared that the project is not registered in other GHG programs; PO confirmed that the project will only be going forward with UCR registry, as declared in MR. Thus, emission reductions generated by project will be solely claimed by PO and PO has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e., India is not a participant in any emission trading programs or nor does it have any binding limits.
Findings	Nil
Conclusion	PO will not claim any other the environmental/carbon credits under any other GHG emission reduction scheme for the crediting period under UCR and PO has provided declaration on the same during the validation. Hence, there is no possibility of double counting.

Positive Social Impact

Means of Project Verification	Not reported by PO.
Findings	-
Conclusion	-

Sustainable development aspects (if any)

Means of Project Verification	Not reported by PO.
Findings	-
Conclusion	-

Internal quality control

Following the completion of the assessment process and a recommendation by the verifier provided after undertaking all due diligence. Verifier has experience of more than 600 GHG audits under various sectors and having more than 13 years of experience explicitly in GHG auditing. Therefore, it can be confirmed that all standard auditing techniques applied to complete the verification task, and it's the responsibility of verifier that the reported COUs are calculated in an adequate manner by compiling all the requirements of methodology in conjunction with UCR standard.

Project Verification opinion

It is my responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the verified monitoring period based on the reported emission reductions in the final monitoring report for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, verifier planned and performed work to obtain the information and explanations that we considered necessary, to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

I confirm the following;

Reporting period: From 19/02/2018 to 31/12/2022

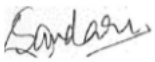
Verified emissions (COUs) in the above reporting period:

	Amount	Unit
Baseline emissions (BE)	347,673	tCO_2e
Project emissions (PE)	6	tCO_2e
Leakage emissions (LE)	0	tCO_2e
Total ERs (COUs)	**347,673 (Rounded down)**	**tCO_2e**

Vintage wise Break up of COUs

Year	**COUs**
2018	68,036 tCO_2e
2019	58,942 tCO_2e
2020	73,595 tCO_2e
2021	64,963 tCO_2e
2022	82,136 tCO_2e
Total: 347,673 CoUs (347,673 tCO_2eq)	

Verified By:



Sanjay Kandari
(Independent Verifier)

Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM EB	CDM Executive Board
CL	Clarification Request
CO_2e	Carbon dioxide equivalent
COU	Carbon Offset Units
DISCOM	Distribution Company
DNA	Designated National Authority
DG	Diesel Generator
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
JMR	Joint Meter Reading
kWh	Kilo Watt Hour
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
MWh	Mega Watt Hour
PE	Project Emissions
PCN	Project Concept Note
PS	Project Standard
PO	Project Owner
QA/QC	Quality Assurance/Quality Control
t	Tonnes

Competence of team members and technical reviewers

Key Tasks Undertaken in GHG	Maintained the compliance of CDM accreditation standard in the previous organization as 'Head Climate Change'.
	Prepared of internal policies and procedures to comply with UNFCCC accreditation standard.
	Managed the external audits, performance assessments of KBS by UNFCCC.
	Independent technical review of validation and verification projects.
	Managed the project work flow from contract review to validation/verification to registration/issuance.
	• Performed Validation and Verification of CDM/VCS projects (including site visits) as Team Leader/TR. • Maintaining EnMS (ISO50001:2018) accreditation and undertaking EnMS audits as lead auditor. • Imparting EnMS trainings • Undertaking ISO14064 training/audits • Qualified in technical areas 1.1,1.2,3.1,13.1 & 13.2
Achievements	Successfully executed more than 500 validation/verification (Climate change) projects in ten years at KBS in the role of team leader and technical reviewer.
	Successfully executed projects in Vietnam, Sri Lanka, Malaysia, Nigeria, Kenya, Bhutan, Myanmar, Malawi, Madagascar, Rwanda, Colombia, Mexico

	India etc. ➢ Successfully led the 2 projects opted by UNFCCC for the performance assessment of DOE and resulted in positive outcome. ➢ Successfully witnessed by NABCB as ISO14064 lead auditor for a witness assessment. ➢ Witnessed by two accreditation bodies for ISO50001 lead auditor.

Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	PO	Final MR	Version 01 dated 06/01/2023	PO
2.	PO	ER Spread sheet	corresponding to MR Version-1	PO
3.	PO	Project Concept Note (dated 26/07/2022)	UCR Website	UCR
4.	PO	Calibration certificates pertaining to the monitoring period.	Corresponding to MP	PO
5.	PO	ER calculation spread sheet	-	PO
6.	PO	Operational Procedures	-	PO
7.	PO	Operational Logbook	Corresponding to MP	PO
8.	PO	Commissioning certificates	-	PO
9.	PO	Power Purchase agreement between PO and DISCOM for the surplus power	-	PO
10.	PO	Calibration Certificates of Monitoring Equipment	As per Appendix 1	PO
11.	PO	Joint Meter Readings by UP Electricity Board & PP	Pertaining to the monitoring Period	PO
12.	PO	Plant Log Books	Pertaining to the monitoring Period	PO
13.	PO	Nameplates of Boiler & Turbine Gen set	Verified Onsite	PO

Clarification request, corrective action request and forward action request

Table 1. CLs from this Project Verification

CL ID	01	**Section no.**	A.1 & C.7	**Date:** 14/03/2023
Description of CL				
1. The following documents to be furnished: a. Commissioning certificate for the verification of start date; b. The electronic logbooks (spreadsheet) for the verification of monitoring parameters; c. JMR for the sale of electricity to grid; d. Sample paper log books for the representative months in the monitoring period; e. Calibration records of all monitoring equipment with applicable calibration frequency define in the PCN. f. NCV Testing reports of bagasse 2. Project owner shall clarify why all applicability criteria of methodology are not justified; the exclusion shall be substantiated?				
Project Owner's response				**Date:** 28/05/2023
1. (a) Enclosed (b) ER sheet enclosed (c) Enclosed (d) Photograph of log book enclosed (e) Plant has its own quality management system. Report of the QMS is enclosed. (f) Third party biomass test report enclosed 2. Justification of applicability criteria is already described in section C.2 of the monitoring report.				
Documentation provided by Project Owner				
Turbine commissioning certificate, PPA, ER sheet, JMR copy, photograph of logbook on sample basis and annual QMS report.				
UCR Project Verifier assessment				**Date:** 01/07/2023
1. The documents sought in the finding (a-f) are submitted to the verifier, the documents were assessed in context of the project verification and found them meeting the various requirements of the UCR standard, finding is closed now. 2. The justification of applicability criteria is now part of the submitted monitoring report, the finding is closed based on the revisions undertaken by the PO in the updated MR.				

CL ID	02	**Section no.**	C.5 of MR	**Date:** 14/03/2023
Description of CL				
I. "Leakage due to diversion of biomass residues from other applications in year y (LEBR,Div,y)" has been established through the government data. PP shall submit the government report to verifier to verify the appropriateness of the data. II. Why the exclusion of few monitoring parameters has not been considered as PRC, PP shall clarify why the parameter e.g. Py was not reported. The parameters are not directly used but part of methodology to crosscheck the appropriateness of the other output parameters. III. Why the project emissions due to electricity import has not been subjected to the ER calculations. The rationale shall be substantiated.				
Project Owner's response				**Date:** 28/05/2023
I. Microsoft Word - 01 First Page (cag.gov.in) II. Quantity of the main product of the production process has been incorporated in revised MR as well as PCN. III. Grid import for distillery unit has been incorporated and accounted in the ER sheet.				
Documentation provided by Project Owner				
Revised MR				
UCR Project Verifier assessment				**Date:** 01/07/2023

I. The government report's link has been submitted and by reviewing the link it was noted that bagasse is sufficiently available in the project area. Verifier also confirms it based on it's local and sectoral expertise. Finding is closed now. II. All monitored parameters are now included in the revised MR, the MR complies with the requirements of methodology. Finding is closed now. III. The import from the grid has been incorporated in the revised ER spreadsheet submitted to the verifier, the calculation also verified from the submitted JMR. Finding is closed.

CL ID	03	**Section no.**	C.10 of MR	**Date:** 14/03/2023
Description of CL				
The calculation of grid emission factor in accordance with the 'Tool to calculate the emission factor for an electricity system' shall be furnished in the spreadsheet to verify the compliance with respect to the cited Tool 7.				
Project Owner's response				**Date:** 28/05/2023
As per UCR Standard version 6.0, "The UCR recommends an emission factor of 0.9 tCO2/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 tCO2/MWh." In line with the above guideline, the Emission factor has been considered as 0.9 t-CO2/MWh. MR and ER has been updated suitably.				
Documentation provided by Project Owner				
https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRCoUStandardAug2022updatedVer6_090822220127104470.pdf				
UCR Project Verifier assessment				**Date:** 01/07/2023
The justification provided by PO by citing the UCR requirement is accepted based on the conservative grounds, the verifier has experience that it will result in higher ERs, if it would have been calculated as per CDM Tool 7. Finding is closed.				

Table 2. CARs from this Project Verification

CAR ID	01	**Section no.**	A.1 of the MR	**Date:** 14/03/2023
Description of CAR				
a. Section A.1 of the submitted monitoring report has details of the steam generation and electricity produced as per the estimated quantum in the PCN. The project owner shall report the actual steam generation and electricity produced during the monitoring period. b. Terminologies used for the emission reductions shall be consistent with the UCR mechanism. PP shall avoid the CDM terminologies across the MR.				
Project Owner's response				**Date:** 28/05/2023
a) Updated. b) Updated				
Documentation provided by Project Owner				
Revised MR				
UCR Project Verifier assessment				**Date:** 01/07/2023
a. The MR has been updated by the PO and actual quantities of steam and electricity pertaining to the monitoring period have been included therein. Finding is closed. b. The UCR terminologies are now part of MR, finding is closed now.				

CAR ID	02	**Section no.**	A.1 of the MR	**Date:** 14/03/2023
Description of CAR				
The comparison between the expected COUs and the actual COUs shall be provided in the relevant section of monitoring report.				
Project Owner's response				**Date:** 28/05/2023
Incorporated in MR				
Documentation provided by Project Owner				
Revised MR				
UCR Project Verifier assessment				**Date:** 01/07/2023
The comparison of estimated vs actual COUs have been included in the MR, it was verified by the verification team that actual ERs are significantly lower than the estimated one for the comparable monitoring period, finding is closed now.				

CAR ID	03	**Section no.**	C.7 of the MR	**Date:** 14/03/2023
Description of CAR				
a. The calibration status reported in the MR doesn't cover the frequency of calibration as stated in the registered PCN. The status of calibration along with the meter/equipment change history (if applicable) shall be provided in the MR. b. Energy balance to report the crosschecks as per the methodology shall be reported in MR and the calculation shall be furnished to the verifier. Refer the requirement in the methodology under QA/QC of parameters.				
Project Owner's response				**Date:** 28/05/2023
a. Updated in MR *b. Incorporated in ER sheet*				
Documentation provided by Project Owner				
Revised MR				
UCR Project Verifier assessment				**Date:** 01/07/2023
a. The revised MR includes all the calibration details of the corresponding equipment, the calibrations also verified during the onsite assessment by the verifier. Finding is closed now. b. The energy balance is part of the ER sheet as per the methodological requirements, it has been verified by the verifier that the energy balance shows the appropriateness of ERs and no overestimations. Finding is closed now.				

Table 3. FARs from this Project Verification

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~		~~**Date:** DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**Project Owner's response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by Project Owner**~~				
~~**UCR Project Verifier assessment**~~				~~**Date:** DD/MM/YYYY~~

Appendix 1

Calibration Details of Monitoring Equipment:

Sr. No.	Equipment Name	Equipment Sr. NO.	Date of Calibration-Validity.
1	Mechanical Way Bridge	JET 2463	17/10/2018– 16/10/2019 14/10/2019– 13/10/2020 19/10/2020– 18/10/2021 16/10/2021– 15/10/2022 20/10/2022 –19/10/2023
2	Energy Meter 4 [EM4]	X1004047	02/04/2018 –01/04/2019 23/03/2019 –22/03/2020 01/04/2020 –31/03/2021 01/04/2021 –31/03/2022 01/04/2022 -31/03/2023
3	Energy Meter 4 [EM1]	X1004044	02/04/2018 – 01/04/2019 23/03/2019 – 22/03/2020 01/04/2020 – 31/03/2021 01/04/2021 – 31/03/2022 01/04/2022 - 31/03/2023
4	Energy Meter 5[EM1]	X10040478	02/04/2018 – 01/04/2019 23/03/2019 – 22/03/2020 01/04/2020 – 31/03/2021 01/04/2021 – 31/03/2022 01/04/2022-31/03/2023
5	Steam Flow Meter	Y1TA16492	22/07/2018 – 21/07/2019 10/11/2019 – 09/11/2020 20/11/2020 – 19/11/2021 04/11/2021 – 03/11/2022 03/08/2022 - 02/08/2023
6	Pressure Gauge	Y1TA16519	22/07/2018 – 21/07/2019 10/11/2019 – 09/11/2020 20/11/2020 – 19/11/2021 04/11/2021 – 03/11/2022 03/08/2022 - 02/08/2023
7	C2T902317	C2T902317	22/07/2018 – 21/07/2019 10/11/2019 – 09/11/2020 20/11/2020 – 19/11/2021 04/11/2021 – 03/11/2022 03/08/2022 - 02/08/2023