UCR PROJECT

FINAL VERIFICATION REPORT

UCR-471

Climensys Pvt. Ltd.

Project Final Verification Report Form (FVR)

CARBON OFFSET UNIT (CoU) PROJECT

Final Verification Report (FVR)

Basic Information

Name of approved UCR Project Verifier/Reference No.	Climensys Pvt. Ltd.
Validity of UCR approval of Verifier	Valid
Completion Date of this FVR (Final Verification Report)	10/06/2025
UCR Project Registration Code	UCR-471
Approved UCR Scopes and GHG Sectoral scopes for Project Verification for the current project	Scopes specific to ACM0006: 01 Energy industries (Renewable/Non-Renewable Sources) Scopes specific to ACM0017: 01, 05, 07 and 15
Host Country where project is located	India
Title of the project activity	Carbon Credit Generation Project by NSL Sugars Ltd. at Pawarwadi, Maharashtra, India
Name of Entity requesting verification service **(Can be Project Owners themselves or any Entity having authorization of Project Owners, example aggregator.)**	NSL Sugars Ltd.
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Pawarwadi Rd, Majalgaon Taluka, Beed District, Maharashtra - 431131, India Contact: nagaraju.n@nslsugars.com
Applied methodologies (approved methodologies by UCR Standard used)	CDM Methodologies: 1) ACM0006: Electricity and heat generation from biomass, version16.0 2) ACM0017: Large-scale Consolidated Methodology: Production of biofuel, version 04.0 Standardized baseline: Not applicable.
Current Status	Verification process completed.
Project Verifier's Confirmation: **The UCR Project Verifier has verified the UCR project activity and therefore**	• The UCR Project Verifier [Vivek Ahirwar, C/o Climensys Pvt. Ltd.], certifies the following with respect to the UCR Project Activity [Carbon Credit

confirms the following:	Generation Project by NSL Sugars Ltd. at Pawarwadi, Maharashtra, India, UCR ID 471]. • The Project Owner has correctly described the Project Activity in the Project Concept Note (version 01, dated 15/12/2024) including the applicability of the approved CDM methodologies [ACM0006 Version 16.0 and ACM0017 Version 04] and meets the required conditions adequately 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 was designed to generate GHG emission reductions estimated at 1,99,275 tCO_2e per annum, as indicated in the PCN. These reductions are additional to those likely to occur in the absence of the Project Activity and comply with all applicable UCR rules. However, the actual claim achieved during the current monitoring period is an annualized average of 37,350 tCO_2e. • During the current verification period a total of **498,002 CoUs** were achieved. However, for the biomass power related scope, PP has applied UCR specified adjustment factor of 10%, which has conservatively resulted into the final ER of **448,200 CoUs, hence final net annualized ER is 37,350 CoUs.** 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, guidelines, provisions prescribed and therefore recommends UCR Program to register the Project activity with above mentioned labels.
Name of the authorized personnel of UCR Project Verifier and his/her signature with date	**Name: Vivek Kumar Ahirwar** **Date: 10/06/2025**
Signature & Stamp	CLIMENSYS PRIVATE LIMITED FARIDABAD

SECTION A. PROJECT VERIFICATION REPORT

A.1. Executive summary:

Climensys Pvt. Ltd., an approved UCR Auditor represented by Vivek Kumar Ahirwar, has been appointed by "NSL Sugars Limited (NSL)" to perform an independent UCR verification of its project, **"Carbon Credit Generation Project by NSL Sugars Ltd. at Pawarwadi, Maharashtra, India", UCR ref. no. 471** for the reported GHG emission reductions for the given monitoring period from **01/01/2013 to 31/12/2024** (both dates included). As per UCR Standard, a UCR project must undergo independent third-party verification and certification of emission reductions as the basis for issuance of 'Carbon Offset Units' (CoU).

NSL Sugars Limited (NSL), formerly known as SCM Sugars Ltd, is one of the known sugar companies in south India and a sugar arm of 'NSL' group. NSL Group entered the 'sugar' business being related to agro-commercial crop business. This project is a GHG mitigation scope registered under UCR with Project ID 471. This registered project activity is a combination of two scopes included under the JM unit of NSL Sugars Ltd. which is located in Pawarwadi Village, Majalgaon Taluka in the district of Beed in Maharashtra state, India.

The project activity mainly includes two scopes, which are:

Scope 1: Generation of carbon credits due to an existing 30 MW bagasse-based co-generation unit at Pawarwadi sugar mill.

Scope 2: Generation of carbon credits due to production and applicability of bioethanol produced in the unit which is supplied to OMCs for blending with petrol or equivalent services.

The objectives of this verification exercise are to establish that:

- project activity has been implemented and operated as per the registered PCN/ 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.

In this regard, the verification scope was initiated by the Verification team (i.e. Climensys audit team) in the month of March 2025, followed by submission of project related documents, data and UCR reports from Project Proponent. The Verifier has conducted a detailed desk review of the submitted information and conducted a pre-audit discussion session with authorized Consultant Team of NSL on 06/03/2025. As an audit procedural, Climensys has submitted the first set of Audit Findings under this Draft Verification Report (DVR), which were addressed by

the project consultant with appropriate justification and revision into the project Monitoring Report and ER calculation sheet.

As a next step of the process, audit team has evaluated the revised submission received from project consultant, followed by the UCR declarations and other supporting documents. Upon satisfactory closure of the findings and completeness of all documentation, the Audit team has finally confirmed the emission reductions as approved under this Final Verification Report.

A.2. 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.

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.
h) 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.

A.3. Description of project:

As per the review and assessment, it is stated that NSL Sugars Limited (NSL), is one of the most efficient sugar companies in south India and a sugar arm of 'NSL' group. NSL Group entered the 'sugar' business being related to agro- commercial crop business. The current carbon project activity included under this UCR document is a combination of two scopes included under the Koppa Sugar unit of NSL Sugars Ltd. Which is located in the Pawarwadi Village, Majalgaon Taluka in the district of Beed in Maharashtra state, India. These two main scopes are:

> **Scope 1:** Generation of carbon credits due to an existing 30 MW bagasse-based co-generation unit at Pawarwadi sugar mill.
>
> **Scope 2:** Generation of carbon credits due to production and applicability of bioethanol produced in the unit which is supplied to OMCs for blending with petrol or equivalent services.

Both these scopes are well recognized activities under GHG mechanisms due to the reduction of carbon emissions as compared to their respective baseline scenarios viz. displacement of grid electricity with the export power produced & supplied from the co-generation unit and displacement of petrol with a share of blending of bioethanol supplied by NSL.

Review of the Co-generation Unit:

The verification team has reviewed that the project activity utilizes available mill generated bagasse effectively for generation of steam and electricity for both in-house consumption and to export surplus electricity to the power grid. The project meets the captive steam and power requirement of sugar unit, co-generation (Cogen) plant auxiliaries and power requirement of the facilities. The balance power is exported to Indian Grid (MSEDCL). This export power is eligible for emission reduction claim.

As per design specification, the unit has an existing co-generation unit with installed capacity of 30 MW turbine, out of which 2% of gross electricity generated is assumed to be imported electricity. During the off season the plant generates 27.25 MW of power with 3.5 MW of captive consumption load and during the season the plant generates 17.5 MW of power with 14 MW of captive consumption load. PLF for the plant during off season is 90.83% and during the season it is 58.33% and the plant is operational since commissioning on 07/01/2013.

The major equipment of the project activity comprises 135 Tons Per Hour (TPH) capacity steam generator with the outlet steam parameters of 110 atm and 540^{o}C, 30 MW Siemens make back pressure type.

Plant operates for 240 days per annum approximately, which includes 180 days of crushing season, and 60 days of off-season. The plant is designed with all other auxiliary plant systems like bagasse / biomass handling system with storage and processing arrangements, ash handling system, water treatment plant, cooling water system and cooling tower, De-Mineralized (DM) water plant, compressed air system and balance of plant including high pressure piping etc. for its successful operation. The provision of extraction cum condensing machine allows the possibility of operating the plant during the off-season with the saved bagasse and procured surplus biomass residues.

Review of the Bioethanol Unit:

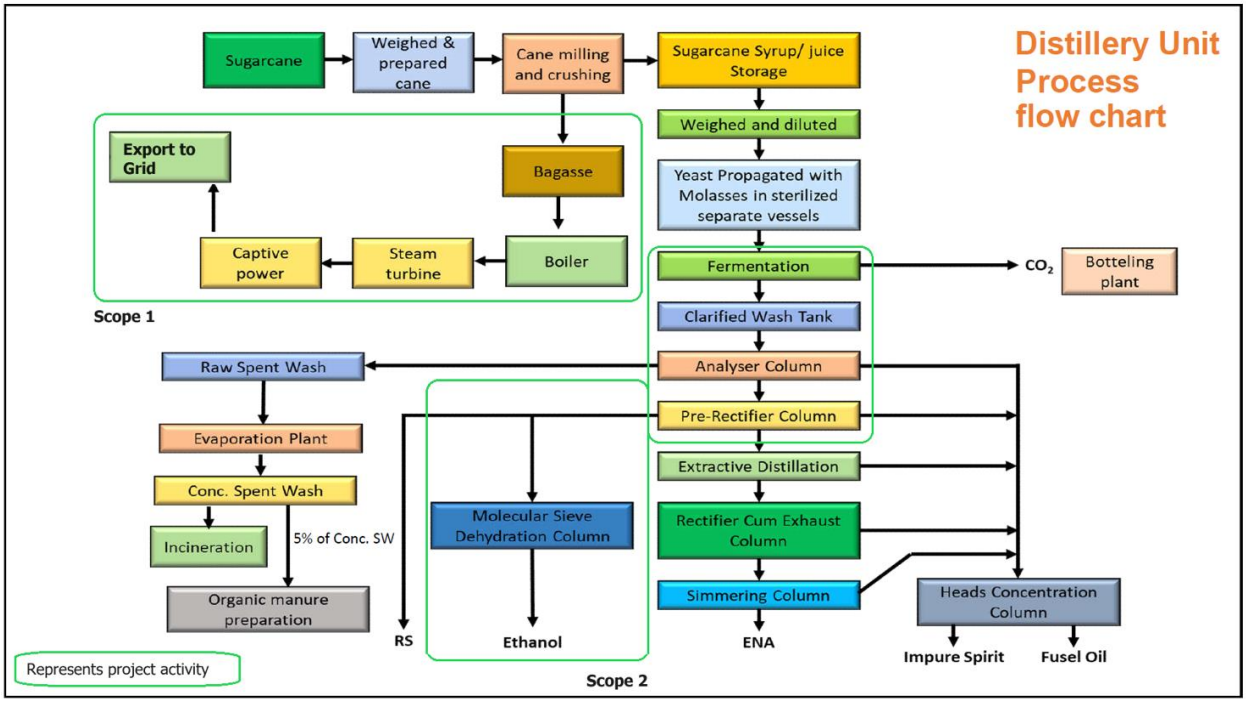
The audit team observed that the bioethanol plant produces ethanol for blending with regular fuel as substitute. Bioethanol fuel is mainly produced by the sugar fermentation process, although it can also be manufactured by the chemical process of reacting ethylene with steam. Ethanol can be produced from biomass by the hydrolysis and sugar fermentation processes. Biomass wastes contain a complex mixture of carbohydrate polymers from the plant cell walls known as cellulose, hemi cellulose and lignin. In order to produce sugars from the biomass, the biomass is pre-treated with acids or enzymes in order to reduce the size of the feedstock and to open up the plant structure. Thus, bioethanol from sugar plant is the output of series process that goes through Fermentation, Distillation and Molecular Sieve Dehydration (MSDH) process.

The project activity was commissioned in May 2021 and bioethanol is being produced for producing blended biofuel by OMCs to whom NSL has supply contracts. This blended biofuel is finally used as fuel in existing stationary installations (e.g. diesel generators) and/or in vehicles within India. The project activity is hence a renewable energy project activity that displaces more-GHG-intensive fossil fuel for combustion in vehicles and stationary installations.

The key features of the bioethanol project scope are as follows:

Existing installed capacity : 250 KLPD
Purpose : To supply for biofuel blending by Oil Marketing Companies
Blending types : B10 and B20.
The energy values : 44.22 MJ/kg with a blend of 10% (E10)
The targeted blending : Current-12-13%, however, as per central government order to be achieved 25% blending by year of 2025

Project boundary of the two Scopes reviewed by the verification team:



Scope of Capacity Expansion:

The audit team has reviewed that the NSL Pawarwadi unit has not planned any capacity expansion in the current monitoring period.

The project scopes contribute to emission reductions as well as SDG targets creating a sustainable pathway on the region.

SECTION B. Project Verification team, technical reviewer and approver

B.1. 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		
					Document review	Remote Inspection	Interviews
1.	Team Leader	Ahirwar	Vivek Kumar	Climensys Pvt. Ltd.	Y	Y	Y
2.	Validator / Verifier	Barwal	Anjali	Climensys Pvt. Ltd.	Y	N	N
3.	Technical Expert	Ahirwar	Vivek Kumar	Climensys Pvt. Ltd.	Y	Y	Y
4.	Financial/ Other Expert	NA	NA	NA	NA	NA	NA

B.2. Technical reviewer and approver of the project verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)
1.	Technical Reviewer	Internal	Srivastava	Abhishek Kumar	Climensys Pvt. Ltd.
2	Approver	Internal	Srivastava	Abhishek Kumar	Climensys Pvt. Ltd.

SECTION C. Means of Project Verification

C.1. Desk/ document review:

As per the registered project document and based on the ex-ante project calculation, it has been verified that the project activity utilizes the bagasse for co-generation of steam and electricity and is capable to generate around 114,840 MWh of annualized power next export to the grid, similarly the distillery for bioethanol production having capacity of 250 KLPD and capable of generating 34,777 tons annualized average bioethanol for blending.

Based on the primary data collected during the project design and based on all methodological parameters, the estimated emission reductions are about (for Bagasse-based co-generation): 58,875 CoUs per annum & (for blended biofuel): 140,400 CoUs per annum, whereas actual emission reductions accounted during the first CoU period has been submitted as a part of first monitoring and verification. This period was considered for 01/01/2014 to 31/12/2024 which led to an annual avg. CoUs of 37,350 (after considering gross-to-net adjustment factor).

The project meets the captive steam and power requirement of sugar unit, co-generation (Cogen) plant auxiliaries and power requirement of the facilities. The balance power is exported to Indian grid (MSEDCL) since commissioning on 07/01/2013. The Bioethanol production unit at Pawarwadi was commissioned in May 2021 and bioethanol is being produced for producing blended biofuel by OMCs to whom NSL has supply contracts Therefore, the consideration of crediting period for the project is justified as 01/01/2013 and is in line with UCR Requirements.

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 PCN. The monitoring plan required equipment(s) are available at the plant, and most of the calculation parameters are considered based on primary data; hence overall estimation was found justified and monitoring of all the required parameters are properly addressed.

The managers of the individual unit are responsible for maintaining records of daily, monthly and annual data. These data sets or the internal reporting practices are reviewed by the plant head or at group head level, further reviewed by responsible or authorized official at NSL group, followed by consultant who is responsible for the carbon project cycle. Moreover, the data related to ex-ante & post monitoring parameters are mainly sourced from authentic official records, and already approved by UCR under the registered PCN. Also, the ex-post values are driven from primary records verified and signed by the NSL officials; hence considered as self-declared official data. All the monitored data and related documentation shall be archived and stored (electronically & hard copies) till two years beyond the crediting period.

The energy meters were found to be installed at the respective places as observed through captured photographs by the verification team and through the live video during the remote assessment.

The project boundaries and all key equipment are in line with the registered PCN. The verification team confirmed during the remote auditing (video conferencing) that the UCR project is completely operational and the name plate details of all key equipment are in line to the registered PCN.

The details of operation of the project activity were cross checked through interviews and found consistent. The plant was not operational for 4-5 months in each other due to availability and season variation which has affected the generation values and co-gen unit also achieved lower emission reductions compared to ex-ante. But no major breakdowns have been observed during the monitoring period which has affected the applicability of the applied methodology as reported in the MR. However, for the bioethanol unit the plant became operation from 2021 and since then the generation was good due to availability of feedstock. Hence bioethanol unit achieved significantly lower emission reductions compared to ex-ante values.

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

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

The actual emission reductions achieved **498,002 tCO2e (i.e., 498,002 CoUs)** for the current monitoring period. This value is derived most conservative manner by using rounding down approach in the calculated values. However, in line with the requirement for biomass power related scope prescribed under UCR, PP has applied UCR specified adjustment factor of 10%, which has conservatively resulted into the final ER of **448,200 CoUs.**

C.2. Remote inspection:

Date:	Activity Performed	Means of communication	Outcome
07/03/2025	Document Review, Monitoring plan, project parameters, calculations & Interviews	Online via Zoom Meeting Call	Satisfactory and acceptable

C.3. Interviews:

SN	Interviews			Date	Subject
	Last Name	First Name	Affiliation		
1	Akula	Lokesh Kumar	Deputy Manager (Environment)	07/03/2025	Overall Supervision, Technical Review, Generation Data, records, monitoring practices etc.
2	Nidadavolu	Nagaraju	DGM-ESG Lead	07/03/2025	Admin and documentation support, signature of UCR related documents etc.
3		Devappa	HR Head	07/03/2025	Overall documentation, data management, training

					and technical
4	D	Karthikeyan	WTP Manager	07/03/2025	Technical parameters, Monitoring details, Training and quality assurance etc.
5	Krishna Rao	Y	Admin Head	07/03/2025	Overall UCR Requirements, documentations, baseline, ER calculation, clarifications, communications, Clearances, Environmental Risks, Sustainability related etc.

C.4. Sampling approach:

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

C.5. Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised:

The verification team has observed some points where clarification and corrective actions were required to finalize the verification assessment. These were responded by PP and found satisfactory. Please refer to the Appendix D of this report for more details.

Areas of Project Verification findings	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)			
Identification and Eligibility of project type	-	-	-
General description of project activity	-	-	-
Application and selection of methodologies and standardized baselines	-	-	-
- Application of methodologies and standardized baselines	CL#01	-	-
- Deviation from methodology and/or methodological tool	-	-	-
- Clarification on applicability of methodology, tool and/or standardized baseline	CL#01	-	-
- Project boundary, sources and GHGs	CL#01	-	-
- Baseline scenario	-	-	-
- Estimation of emission reductions or net anthropogenic removals	CL#01	-	-
- Monitoring Report	CL#01	-	-
Start date, crediting period and duration	-	-	-
Environmental impacts	-	-	-
Project Owner- Identification and communication	-	-	-
Others (such as supporting documents, revised templates etc.)	CL#01	-	-
Total	**1**	**0**	**0**

SECTION D. Project Verification findings

D.1. Identification and eligibility of project type:

Means of Project Verification	Verification team checked the monitoring report with "UCR Program Verification Standard", latest version. The information in the registered PCN has been referred during verification and reflected in the UCR MR adequately. The verification of the current monitoring period is found to have met all the requirements.
Findings	Nil
Conclusion	The project is a combination of renewable energy project and bioethanol production which relates to sectoral scope 01, 05, 07 and 15. The project is a UCR registered project, the eligibility requirements of UCR met for the project type for both the scopes.

D.2. General Description of project activity:

Means of Project Verification	Verifier checked the monitoring report against the project description submitted under the registered UCR PCN. Also, while verifying "UCR Program Verification Standard", latest version has been referred, the verification of the current monitoring period is found to have met all the requirements. Through document review in conjunction with the interview with the Project Representatives and UCR consulting team, the verification team confirms that all physical parameters of the project activity including technology, data collection systems and monitoring systems etc. have been implemented in accordance with the project PCN.
Findings	Nil
Conclusion	According to UCR Program Verification Standard, the verifier confirms that: **(a)** The project activity is implemented as per the registered PCN, the project activity was fully commissioned and operational at the time of verification. **(b)** The actual operation of the UCR project activity is in line to the registered PCN, all baseline data and emission factors are reasonably applied which were approved in the registered UCR PCN. **(c)** The actual emission reduction is reasonable but on lower side while comparing with the expected emission reductions reported in the PCN for the current monitoring period. This decrease in

	CoUs does not have any material impacts as results are correlated to the production data, which are based on primary records. **(d)** The ER values are verifiable from the monthly data and official declarations etc. Also, the measuring equipment and test certificates are reasonably addressed during the remote audit to ensure all monitoring requirements of the project activity. **(e)** The verifier has reviewed the registered PCN including the monitoring plan, revised monitoring report, the applied monitoring methodologies, also the UCR related guidelines and specifications., relevant decisions from UCR.

D.3. Check and balances of overall applicability for the current Monitoring Period:

SN	Review description	Assessment Remark
1	Consistency with Registered PCN	YES
	- Project Description	- Acceptable
	- Capacities & technical parameters	- Acceptable
	- Baseline scenarios	- Acceptable
	- Additionality	- Not Applicable
	- Start date criteria	- Acceptable
	- Crediting period	- Acceptable
	- Monitoring Parameters	- Acceptable
	- Calculation Methods	- Acceptable
	- Others	- Not Applicable
2	Requirements as per UCR Standard	YES, acceptable
3	Requirements as per applied Methodologies	YES, acceptable
4	Availability of data as per monitoring plan	YES, acceptable
5	Accuracy of data & information	YES, acceptable
6	Availability of Monitoring equipment & relevant practices	YES, acceptable
7	Availability of team and organization structure	YES, acceptable
8	Availability of Clearances, NOCs, Approvals etc.	YES, acceptable
8	Stakeholders related information	YES, but not applicable
9	Environmental Risk related information	YES, acceptable
10	Sustainable Development related information	YES, acceptable
11	Consistency with UCR Templates	YES, acceptable
12	Contact Details and Communication	YES, acceptable
13	Onsite/Off-Site Audit Process	YES, remote audit conducted
14	Other remarks	Not Applicable

D.4. Remarks related to some specific sections:

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 final version of 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 /1.2/ transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation. Baseline emissions: The baseline emissions are to be calculated as follows: $BEy = EL_{BL,GR,y} \times EF_{EG,GR,y}$ Where: BEy = Baseline emissions in year y (tCO_2/yr) $EL_{BL,GR,y}$ = Baseline electricity sourced from the grid in year y (MWh) = Net electricity produced from the co-gen unit that has been supplied to grid (MWh) $EF_{EG,GR,y}$ = Grid emission factor in year y (tCO_2/MWh) Therefore, **For Scope-1: Biomass co-gen unit:** $BEy = ELBL,GR,y \times EFEG,GR,y$ BEy = **171,221 tCO_2e** **For Scope-2: Bioethanol production for blended biofuel** BEy= **330,588 tCO_2e** **Project Emissions**

	As per ACM0006: Electricity and heat generation from biomass, version16.0 & ACM0017: Large-scale Consolidated Methodology: Production of biofuel, version 04.0, **For Scope-1: Biomass co-gen unit:** If project proponents chose to include emissions due to uncontrolled burning or decay of biomass residues in the calculation of baseline emissions, then emissions from the combustion of this category of biomass residues have also to be included in the project scenario. Otherwise, this emission source may be excluded. The project activity does not include biogas. The project activity does not include any fossil fuel. The project activity does not include emission reduction in electricity generation at the project site. **Thus, PE_y = 3,805 tCO_2e** **For Scope-2: Bioethanol unit:** The project emission consideration can be referred from the para 41 of the applied methodology: $$PE_y = PE_{Biomass,y} + AF_{1,y} \times PE_{MeOH,y}$$ Here, as per the description of the para 42 and 43 of the methodology, it can be considered that the project emissions for the parameters are not applicable. Hence **PEy = 0.** **Leakage** As per ACM0006: Electricity and heat generation from biomass, version16.0 & ACM0017: Large-scale Consolidated Methodology: Production of biofuel, version 04.0; **For Scope-1: Biomass co-gen unit:** For the current project activity, leakage emission is considered as zero as power generation is based on bagasse which are available from the same sugar factory. Hence both availability and transportation related concerns are eliminated. **Hence, LE_y = 0** **For Scope-2: Bioethanol unit:** The leakage emission consideration has been referred

	from the para 48, as follows: $LE_y = LE_{MeOH,y} + LE_{BR,y} - LE_{FF,y}$ Where: LE_y = Leakage emissions in year y (tCO_2) $LE_{MeOH,y}$ = Leakage emissions associated with production of methanol used in biodiesel production in year y (tCO_2) $LE_{BR,y}$ = Leakage emissions from displacement of existing uses of waste oil/fat or biomass residues in year y (tCO_2) $LE_{FF,y}$ = Leakage related to the avoided production of fossil fuel in year y (tCO_2) Here, PP refers to the para 47 to 58 of the applied methodology and as per these prescriptions, the leakage emissions specific to this project activity scope can be consider as zero. **Hence, LEy = 0.** **The total net ER value considered for claim for the current monitoring period after applying the rounded down function on each vintage/year based on the conservative grounds. = 498,002 tCO2e (i.e., 498,002 CoUs)** **However, in line with the requirement for biomass power related scope prescribed under UCR, PP has applied UCR specified adjustment factor of 10%, which has conservatively resulted into the final net ER of 448,200 CoUs (i.e. for both the scopes).** **Breakup of the two scopes and annual ER estimations are reported under the Appendix 5.**
Findings	Clarification was raised and it was resolved after review of PPs response.
Conclusion	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.

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. However, generic descriptions are reported in the PCN and MR, which are found justified and reasonable. Since, there is no positive claim made by PO, hence no further assessment was conducted.

Sustainable development aspects (if any)

Means of Project Verification	Not reported by PO. However, a few generic descriptions and some organization level CSR activities are reported under the MR. From such generic description Verification team could reasonably accept that project is associated with a few sustainable development indicators, upto a certain extent, However, since there is no positive claim made by PO or specific SDGs are not monitored and claimed, hence no further assessment was conducted; while reported SDG indicators are accepted under “limited assurance” by the verification team.

D.5. 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 300 GHG audits under various sectors and having more than 15 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.

D.6. Project Verification opinion

As an accredited auditor, we would like to express an independent GHG verification opinion on the GHG emissions calculation and the overall reporting of the GHG emission reductions from the project for the verified monitoring period based on the required project guidance and compliance to the applied methodology. 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.

Climensys Pvt. Ltd., hereby confirms the following;

Reporting period : From 01/01/2013 to 31/12/2024

D.6.1 Verified emission in the above reporting period (for both the scopes):

Details	Value	Unit
Total net baseline emissions (BE)	501,808.33	tCO2e
Total project emission (PE)	3,805	tCO2e
Leakage emission (LE)	0	tCO2e
Gross to net adjustment factor for co-gen unit	10% on each vintage	UCR guideline
Thus, final net ERs for the entire period	448,200	tCO2e (rounded down)

D.6.2. Vintage Wise Breakup of COUs

Actual Estimates:

Year wise ER estimate:

Year/ Description	ER for Scope 1 (Biomass co-gen)			ER for Scope 2 (Bioethanol Blending)		
	BE (tCO2e)	PE (tCO2e)	Net ER (tCO2e)	BE (tCO2e)	PE (tCO2e)	Net ER (tCO2e)
Year 1 (2013)	15618	55	15563	0	0	0
Year 2 (2014)	18655	96	18559	0	0	0
Year 3 (2015)	11675	248	11426	0	0	0

Year 4 (2016)	4049	91	3958	0	0	0
Year 5 (2017)	10541	65	10476	0	0	0
Year 6 (2018)	24246	68	24178	0	0	0
Year 7 (2019)	14643	165	14478	0	0	0
Year 8 (2020)	15516	136	15380	0	0	0
Year 9 (2021)	28628	891	27737	6207	0	6206
Year 10 (2022)	16671	1098	15574	122100	0	122100
Year 11 (2023)	10979	892	10087	129111	0	129111
Year 12 (2024)				73169	0	73169
Total =	**171221**	**3805**	**167416**	**330588**	**0**	**330586**

Final Estimates after adjustment for Scope-1 & Scope-2:

Source: As per UCR Guideline released dated 04/10/2023 on default PE's for biomass projects via update link: https://medium.com/@UniversalCarbonRegistry/biomass-based-power-thermal-energy-project-transport-emissions-related-default-parameters-6dea0e40c938. The application of 10% of gross-to-net adjustment factor is reasonable and conservative. Hence, final value verified and approved for the current monitoring period is as follows:

Final value reported:

Year wise ER estimate:

Year/Description	ER for Scope 1 (Biomass co-gen) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)	ER for Scope 2 (Bioethanol Blending) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)	TOTAL NET ER After Deduction (CoUs)
	Net ER (tCO2e)	Net ER (tCO2e)	(MP 1 under UCR)
Year 1 (2013)	14007	0	14007
Year 2 (2014)	16703	0	16703
Year 3 (2015)	10283	0	10283
Year 4 (2016)	3562	0	3562
Year 5 (2017)	9428	0	9428
Year 6 (2018)	21760	0	21760
Year 7 (2019)	13030	0	13030
Year 8 (2020)	13842	0	13842
Year 9 (2021)	24963	5585	30548
Year 10 (2022)	14017	109890	123907
Year 11 (2023)	9078	116200	125278
Year 12 (2024)	0	65852	65852
Total =	**150673**	**297527**	**448200**

Detailed calculations and related parameters shall be referred from the ER sheet.

Estimated amount of GHG emission reductions for this monitoring period as per the registered PCN	**2,391,300**	**tCO2e**
Final Net GHG emission reductions (ERs) achieved for the current monitoring period (after gross-to-net adjustment factor):	**448,200**	**tCO2e**
Thus, % variation in ERs	**-81.26%**	
Reason: The audit team has verified that this lower ER is due to lower production and non-operational months realized by PP during the current MP. The ex-ante values were estimated based on annualized project PLF and factors, whereas current ER is based on actual generation, also gross-to-net adjustment factor on final ERs for biomass power scope further reduced the ER by 10%. Hence variation is significant, but acceptable and found conservative.		

D.6.3. Final COUs approved for issuance:

Actual Emission Reductions calculated:

Year wise ER estimate:

Year/Description	ER for Scope 1 (Biomass co-gen)	ER for Scope 2 (Bioethanol Blending)	TOTAL NET ER (CoUs)
	Net ER (tCO2e)	Net ER (tCO2e)	(MP 1 under UCR)
Year 1 (2013)	15563	0	15563
Year 2 (2014)	18559	0	18559
Year 3 (2015)	11426	0	11426
Year 4 (2016)	3958	0	3958
Year 5 (2017)	10476	0	10476
Year 6 (2018)	24178	0	24178
Year 7 (2019)	14478	0	14478
Year 8 (2020)	15380	0	15380
Year 9 (2021)	27737	6206	33943
Year 10 (2022)	15574	122100	137674
Year 11 (2023)	10087	129111	139198
Year 12 (2024)	0	73169	73169
Total =	**167416**	**330586**	**498002**

Final Emission Reductions claimed after gross-to-net adjustment factor:

Final value reported:

Year wise ER estimate:			
Year/Description	**ER for Scope 1 (Biomass co-gen) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)**	**ER for Scope 2 (Bioethanol Blending) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)**	**TOTAL NET ER After Deduction (CoUs)**
	Net ER (tCO2e)	**Net ER (tCO2e)**	(MP 1 under UCR)
Year 1 (2013)	14007	0	14007
Year 2 (2014)	16703	0	16703
Year 3 (2015)	10283	0	10283
Year 4 (2016)	3562	0	3562
Year 5 (2017)	9428	0	9428
Year 6 (2018)	21760	0	21760
Year 7 (2019)	13030	0	13030
Year 8 (2020)	13842	0	13842
Year 9 (2021)	24963	5585	30548
Year 10 (2022)	14017	109890	123907
Year 11 (2023)	9078	116200	125278
Year 12 (2024)	0	65852	65852
Total =	**150673**	**297527**	**448200**

Hence, final approved CoUs for issuance at UCR = 448,200.

APPENDIX 1:

Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM EB	CDM Executive Board
CL	Clarification Request
CO2e	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
UCR	Universal Carbon Registry

APPENDIX 2:

Competence of team members and technical reviewers

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Vivek Kumar Ahirwar (Mr.)	Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over ten years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects and audits in different states across the India. He has done Master in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India. In this current UCR verification, Vivek is the lead auditor and team leader, managed end to end to assessment as per UCR requirements,
Abhishek Kumar Srivastava (Mr.)	Abhishek Kumar Srivastava is a climate change and sustainability expert with 15 years of experience in the domain. His area of expertise spans from carbon footprinting to carbon credit development, from energy management to energy solutions, and from waste management to the circular economy. He has done Master in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India. He is a BEE-certified Energy Auditor and Energy Manager. He is also an ISO 14001, ISO 9001, and ISO 14064-certified lead auditor. He has auditing and consulting experience on more than 250 climate change projects worldwide. He has worked as a lead auditor and technical reviewer for UNFCCC's Clean Development Mechanism projects with several accredited agencies. In this UCR verification, Abhishek is acting as the Technical Reviewer & Approver. He has also conducted required review of the assessment as per the UCR requirement.

Dr. Anjali Barwal	Dr. Anjali is a distinguished professional with extensive expertise in the environment, climate change, sustainable development, clean development mechanisms (CDM), disaster management and resilience. With over a decade of combined research and industrial experience, Dr. Anjali is recognized for her exceptional qualifications and knowledge in these vital fields. Holding an M.Phil. in Energy and Environment and a Ph.D. in Water and Wastewater Treatment from Devi Ahilya Vishwavidyalaya, Indore (India), her academic achievements underscore her dedication to advancing environmental science. Dr. Anjali's credentials include certifications as a Lead Validator and Verifier for ISO 14064-3:2019 and ISO 14064-2:2019, with proficiency in ISO 14064-1:2018 requirements, as well as certification as a Lead Auditor for ISO 9001:2015. In this current UCR verification, Dr. Anjali is acting as the Verifier and conducted required reviews of the documents as per UCR requirements.

APPENDIX 3:

Document reviewed or referenced

No.	Author	Title	References to the document	Remark
1	PO	Initial MR	Version 01, 01/03/2025	Ok
2a	PO	Final MR	Version 02, 16/05/2025	Ok
3	PO	ER sheet	Version 01, 01/03/2025	Ok
4a	PO	Final ER sheet	Version 02, 16/05/2025	Ok
5	PO	Registered PCN	Version 01, 15/12/2024, UCR Website	Ok
6	PO	Commissioning Certificates	Corresponding to Project units	Ok
7	PO	Monthly Energy Statements and Invoices	Corresponding to Project activity, for the entire monitoring period	Ok
8	PO	Equipment, Scales, Meters & Calibration/testing details	Corresponding to Project monitoring devices, tools, scales etc. for the entire monitoring period	Ok
9	PO	Training Records	Corresponding to Project activity, for the entire monitoring period	Ok
10	PO	Declaration on Double-accounting	Corresponding to Project activity, for the entire monitoring period	Ok
11	PO	Verification Statement - No Conflict-of-Interest Statement	Corresponding to Project activity, for the entire monitoring period	Ok
12	PO	CSR related documents	Received from different regions contributed by NSL Sugars Ltd	Ok
13	PO	ISO Certificates	Received specific to the four units, maintained regularly	OK
14	PO	NOCs and Approvals	Received specific to the four units, maintained regularly	Ok

APPENDIX 4:

Clarification request, corrective action request and forward action request

Table 1. CLs & CARs from this Project Verification

Descriptions	Specifications
Assessment Level:	1st Assessment
Date of release of Assessment:	15/04/2025
Project Title:	Carbon Credit Generation Project by NSL Sugars Ltd. at Pawarwadi, Maharashtra, India
UCR ID:	471
Verification Period:	01/01/2013 – 31/12/2024
Expected date of Response from Project proponent:	30/04/2025

Type	Date	Reference
Clarifications & Documentation	15/04/2025	UCR Monitoring Report, version 01

Description of the Non-Conformance

1) **PP is requested to submit the supporting documents for the following:**
   - (a) as per parameters included in the ER calculation
   - (b) details of the monitoring devices
   - (c) Proof of commissioning
   - (d) Proof of power export/sale with the relevant party/discom
   - (e) documents confirming the project capacities
2) **PP is requested to clarify if SDG related impacts included in the MR are measured and PP intends to verify/certify their positive impacts? If yes, kindly clarify and submit some supporting documents**
3) **PP is requested to correct the ER values (COUs claimed) in both ER and MR as per the final calculations conducted and communicated to VVB during and after the visit/audit calls.**
4) **PP is requested to clarify the following:**
   - (a) PP needs to inform the end use of byproducts of the process, i.e. CO2. In case PP intends to include any Carbon scope related to the CO2 byproducts please share the details.
   - (b) PP is requested to reconfirm the accurate applicability of leakage factor into the ER calculation.
5) **PP is requested to include some more information as part of the Monitoring Plan/Process.**
6) **PP is requested to submit the Declaration for No-double accounting as per the UCR template requirements.**

1st Response from Project Owner/Representative	Date	16/05/2025

1) **PP has provided the following supporting documents:**
   - (a) Invoices
   - (b) Equipment List

(c) PPA
(d) Plant layout

2) SDGs are not claimed by PP in the current monitoring period hence no supporting documents are provided as evidence.

3) PP has corrected the ER values in the MR and ER sheet as per the monitoring period applicable.

4) **PP has clarified the following:**
(a) Since this is already registered Project under UCR, at present PP is not willing to go for any design change. Hence not claimed.
(b) PP has already properly demonstrated the use of 10% leakage factor as per UCR guideline clearly in various sections of MR and into the ER calculation sheet also and the final value of CoUs claimed is also after accounting the 10% leakage factor.

5) The meter details have been added in the Monitoring Plan.

6) PP has submitted the Declaration for No-double accounting.

1st Assessment by Audit Team	**Date**	27/05/2025

The Verification team has done assessment of all the responses and also the revised set of MR, ER and supporting documents have been reviewed. The responses are found to be satisfactory and the verification team is therefore able to confirm that the requirements are in line with the UCR standard and COUs claim is also conservative, which are measured and verified.

There is no specific finding or open comment from Technical Reviewer.

Hence, accepted and closed.

Assessment Outcome	
Closed: ☒	Forward Action Request : ☐
Open : ☐	

Table 2. FARs from this Project Verification

Not applicable

APPENDIX 5:

Screenshots of the approved COUs:

Carbon Scope 1:

Bagasse based co-generation, ER against net export power:

$ELBL,GR,y$ $ELBL,GR,y = ELBL,net,exp$ $ELBL,net,exp$ = ELco-gen,project – ELcap,n	1,90,245	MWh
$EL_{co\text{-}gen,project}$	4,03,653	MWh
$EL_{cap,n}$	2,13,408	MWh
$EL_{PJ,imp,y}$	4,227	MWh
UCR recommended emission factor ($EFEG,GR,y$)	0.9	tCO2e/MWh
Baseline ER for the current MP =	**1,71,221**	**tCO2e**
Project emission for discounting in current MP =	**3,805**	**tCO2e**
Therefore, ER for the current MP =	**1,67,416**	**tCO2e**

Year wise ER estimate:				
Year/Description	**ER for Scope 1 (Biomass co-gen)**			**Net-to-gross adjustment of 10% as per UCR guidance for biomass projects**
	BE (tCO2)	**PE (tCO2)**	**Net ER (tCO2e)**	**Net ER after deduction (tCO2e)**
Year 1 (2013)	15618	55	15563	14007
Year 2 (2014)	18655	96	18559	16703
Year 3 (2015)	11675	248	11426	10283
Year 4 (2016)	4049	91	3958	3562
Year 5 (2017)	10541	65	10476	9428
Year 6 (2018)	24246	68	24178	21760
Year 7 (2019)	14643	165	14478	13030
Year 8 (2020)	15516	136	15380	13842
Year 9 (2021)	28628	891	27737	24963
Year 10 (2022)	16671	1098	15574	14017
Year 11 (2023)	10979	892	10087	9078
Year 12 (2024)				
Total =	**171221**	**3805**	**167416**	**150673**

Carbon Scope 2:

Bioethanol production unit, ER against portion of blending with fossil fuel:

$Q_{bioeth,y}$		115776204.00	tons
BF_y		**133587927.69**	**tons**
$NCV_{BD,y}$		42.65	GJ/ton
$EF_{CO2,PD}$		0.0741	tCO2/GJ
$f_{PJ,y}$		13%	Fraction
$f_{FF,y}$		15%	Fraction

$$BF_y = \left[\left(Q_{bioeth,y} / f_{PJ,i,y}\right) \times f_{FF,y}\right]$$

$$BE_y = BF_y \times NCV_{BF,y} \times EF_{CO2,FF}$$

With

$$BF_y = \left[\left(Q_{bioeth,y} / f_{PJ,i,y}\right) \times f_{FF,y}\right]$$

Conversion from Lit to tons	0.000783	tons/Litre	(density)
BE_y	**422206409**		**tCO2**

ER for Scope 2 (Bioethanol Blending)				Net-to-gross adjustment of 10% as per UCR guidance for biomass projects
BFy	**BE (tCO2)**	**PE (tCO2)**	**Net ER (tCO2e)**	**Net ER after deduction (tCO2e)**
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1964	6207	0	6206	5585
38633	122100	0	122100	109890
40851	129111	0	129111	116200
23151	73169	0	73169	65852
104599	**330588**	**0**	**330586**	**297527**

Final value reported:

Year wise ER estimate:			
Year/Description	**ER for Scope 1 (Biomass co-gen) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)**	**ER for Scope 2 (Bioethanol Blending) (Values after gross-to-net adjustment of 10% as per UCR guidance for biomass projects)**	**TOTAL NET ER After Deduction (CoUs)**
	Net ER (tCO2e)	**Net ER (tCO2e)**	(MP 1 under UCR)
Year 1 (2013)	14007	0	14007
Year 2 (2014)	16703	0	16703
Year 3 (2015)	10283	0	10283
Year 4 (2016)	3562	0	3562
Year 5 (2017)	9428	0	9428
Year 6 (2018)	21760	0	21760
Year 7 (2019)	13030	0	13030
Year 8 (2020)	13842	0	13842
Year 9 (2021)	24963	5585	30548
Year 10 (2022)	14017	109890	123907
Year 11 (2023)	9078	116200	125278
Year 12 (2024)	0	65852	65852
Total =	**150673**	**297527**	**448200**

Final Approval of this report:	**Name: Abhishek Kumar Srivastava** **Date: 13/06/2025**
Signature & Stamp: