UCR Project Verification Report

UCR-369

Climensys Pvt. Ltd.

Project Draft Verification Report Form (DVR)

CARBON OFFSET UNIT (CoU) PROJECT

Verification Report (VR)

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)	11/07/2024
UCR Project Registration Code	UCR-369
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 Koppa, Karnataka.
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)	Koppa, Maddur Taluka, Mandya District, Karnataka – 571425. India. Contact: krishnareddy.bv@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 confirms the following:**	• The UCR Project Verifier [Vivek Ahirwar, C/o Climensys Pvt. Ltd.], certifies the following with respect to the UCR Project Activity [Carbon Credit Generation Project by NSL Sugars Ltd. at Koppa, Karnataka, UCR ID 369]. • The Project Owner has correctly described the Project Activity in the Project Concept Note (version 01, dated 05/09/2023) 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 amounting to the estimated is 133,540 tCO2e per annum, 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. However, the actual claim achieved during the current monitoring period is 66,943 tCO2e annualized average. • During the current verification period a total of **6,69,432 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 **6,08,933 CoUs, hence final net annualized ER is 60,893.** 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 authorised personnel of UCR Project Verifier and his/her signature with date	**Name: Vivek K Ahirwar** **Date: 11/07/2024**
Signature & Stamp:	

SECTION A. PROJECT VERIFICATION REPORT

A.1. Executive summary:

Climensys Pvt. Ltd., an approved URC 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 Koppa, Karnataka.", UCR ref. no. 369 for the reported GHG emission reductions for the given monitoring period from 01/01/2013 to 31/12/2022 (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 369. This registered project activity is a combination of two scopes included under the Koppa Sugar unit of NSL Sugars Ltd. which is located in Koppa Village, Maddur Taluka in the district of Mandya in Karnataka state in India.

The project activity mainly includes two scopes, which are:

Scope 1: generating carbon credits from an existing 26 MW bagasse-based co-generation unit at the Koppa sugar mill.

Scope 2: generating carbon credits from the production of and applicability of bioethanol produced in the Koppa 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 February 2024, 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 20th March 2024. 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), formerly known as SCM Sugars Ltd, 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 Koppa Village, Maddur Taluka in the district of Mandya in Karnataka state. These two main scopes are:

Scope 1: generation of carbon credits due to an existing 26 MW bagasse-based co-generation unit at the Koppa sugar mill. It contributes to power from this biomass co-gen supplied to the grid.

Scope 2: generation of carbon credits due to production and applicability of bioethanol produced in the Koppa unit which is supplied to OMCs for blending with petrol or equivalent services. It contributes to the reduction of fossil fuel share in usages.

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 Karnataka Power Transmission Corporation Limited (KPTCL). This export power is eligible for emission reduction claim.

As per design specification, the NSL Koppa unit has an existing co-generation unit with installed capacity of 26 MW, out of which 1.8 MW is for auxiliary consumption, 5.2 MW is captive-consumption and the rest 19 MW is exported to the grid. The project is operational since June 2004. The Project is owned by M/s NSL Sugars Ltd. which is the Project Proponent.

The major equipment are 110 Tons Per Hour (TPH) capacity steam generator with the outlet steam parameters of 87 kg/cm2 and 515oC, 26 MW capacity turbine generator set of Double Extraction cum Condensing (DEC) type and electrical evacuation package for power export to KPTCL grid. Plant operates for 340 days per annum, which includes 310 days of crushing season, and balance 30 days during 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.

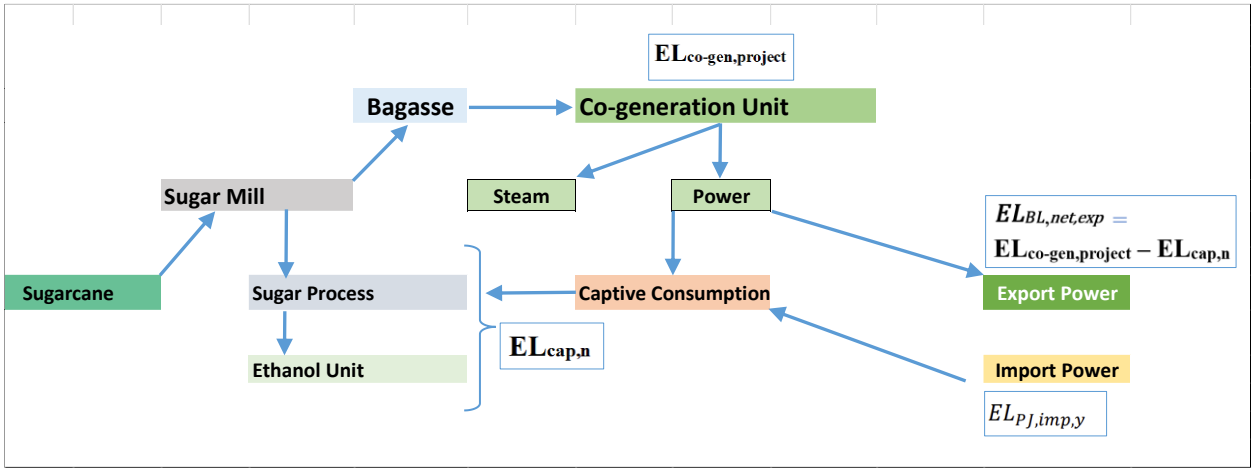
Review of the Bioethanol Unit:

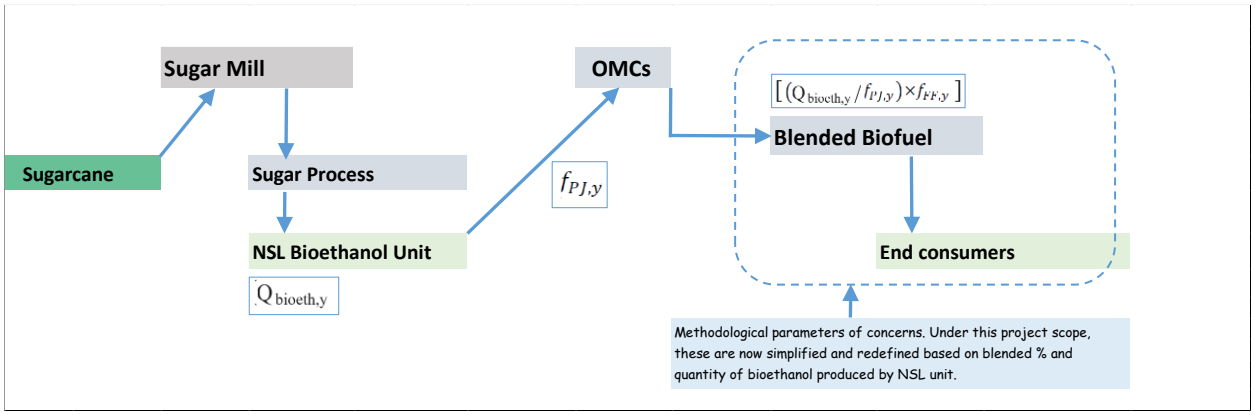
The audit team observed that the bioethanol plant produces ethanol for blending with regular fuel as substitute. The bioethanol from sugar plan is the output of series process that goes through Fermentation, Distillation and Molecular Sieve Dehydration (MSDH) process. The project activity (i.e. Bioethanol production unit at Koppa) was commissioned in October 2007 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. Thuss, this activity is a renewable energy project activity that displaces more-GHG-intensive fossil fuel for combustion in vehicles and stationary installations.

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

Existing installed capacity	: 60 KLPD
Purpose	: Supplying to Oil Marketing Companies for blending
Blending types	: B10 and B20.
The energy values	: 44.22 MJ/kg with a blend of 10%(E10)
The targeted blending	: Current-12-13% has been considered.

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





Scope of Capacity Expansion:

The audit team has reviewed that the NSL Koppa unit has planned capacity expansion and due to which both the co-gen unit and the bioethanol production unit are considered under capacity addition under UCR. This is located in Koppa Village, in Mandya district of Karnataka. However, capacity expansion does not fall under the current monitoring period, hence capacity expansion scope has not been reviewed in detail. However, the audit team reviewed the information related to capacity expansion which are as follows:

Project Scope	Current Capacity	Project Expansion	Timeline
Bagasse based Co-generation unit	26 MW	Addition of 35 TPH boiler and 3 MW turbine unit for the distillery.	Year 2022-23
Bioethanol production, for supply to OMCs for blended biofuel	60 KLPD	Addition of 100 KLPD unit	Year 2023-24

Thus, the audit team reviewed and concluded that NSL Sugars Limited (NSL), a sugar arm of 'NSL' group owns this entire project activity. The current project activity included under this UCR program is a combination of two scopes (power & bioethanol) included under the Koppa Sugar unit of NSL Sugars Ltd. The additional unit of co-gen has been considered in the distillery unit to utilize surplus bagasse from the sugar unit, hence capacity expansion scope can only be considered for future verification in case there is net export to grid power available. Similarly, the capacity addition of bioethanol unit can be considered for future verifications provided the baseline and project design parameters are concurrent with the registered PCN. 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		
					Doc review	Off-Site inspection	Interviews
1.	Team Leader	Ahirwar	Vivek	Climensys Pvt. Ltd.	Y	Y	Y
2.	Validator / Verifier	Barwal	Anjali	Climensys Pvt. Ltd.	Y	N	N
3.	Technical Expert	Ahirwar	Vivek	Climensys Pvt. Ltd.	Y	Y	Y
4.	Financial/ Other Expert	NA	NA	NA	NA	NA	NA

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	External	Soni	Ravikant	Independent Expert (Outsourced entity)
2	Approver	Lead Validator / Verifier	Ahirwar	Vivek	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 92,656 MWh of annualized power next export to the grid, similarly the distillery is for bioethanol production having capacity of 60 KLPD and capable of generating 16,262 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): 82,143 CoUs per annum & (for blended biofuel): 51,397 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 01/01/2013 to 31/12/2022 which led to an annual avg. CoUs of 60,893 (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 Karnataka Power Transmission Corporation Limited (KPTCL). The Bioethanol production unit at Koppa was commissioned in October 2007 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 Jan 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. 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. However, for the bioethanol unit the plant operational days were less, which was mainly due to non-availability of feedstock and downtime for some years. As per review by the Verification team, it was confirmed that such downtime was mainly due to change in spent wash handling practices in the distillery unit. Hence bioethanol unit achieved significantly lower emission reductions compared to ex-ante values; whereas the co-gen unit also achieved lower emission reductions compared to ex-ante but not significantly lower.

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 personals are well aware of their roles & responsibilities.

The actual emission reductions achieved **6,69,432 tCO2e (i.e., 6,69,432CoUs)** 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 **6,08,933 CoUs.**

C.2. Off-site inspection:

Date:	Activity Performed	Means of communication	Outcome
14/12/2022	Document Review, Monitoring plan, project parameters, calculations & Interviews	Online via Zoom Meeting Call	Satisfactory and acceptable
20/12/2022	Discussions on open findings and closure	Via telephonic discussion	Satisfactory and acceptable

C.3. Interviews:

SN	Interviews			Date	Subject
	Last Name	First Name	Affiliation		
1	Krishna Reddy	B V	Sr. VP Distillery Division (NSL Sugar)	03/04/2024	Overall Supervision, Technical Review, etc.
2	N	Mahantesh	Unit Head – Distillery (NSL Sugar)	03/04/2024	Technical parameters, Monitoring details, Training and quality assurance etc.
3.	Ramachandran Rao	S.	Sr. GM – Unit Koppa	03/04/2024	Overall documentation, data

					management, training and technical assistance etc.
4	Ganesh	M.	Dy Manager – Environmental Div, Koppa	03/04/2024	Data, Clearances, Environmental Risks, Sustainability related etc.
5	Sreenath	G. V.	Dr Manager – Electrical, Koppa	03/04/2024	Generation Data, records, monitoring practices etc.
6.	NA (Team)	NA (Team)	Carbon Consulting Team of Client	03/04/2024 04/04/2024 & 15/06/2024	Overall UCR Requirements, documentations, baseline, ER calculation, clarifications, communications 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		1	
Application and selection of methodologies and standardized baselines			
- Application of methodologies and standardized baselines			
- 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	2	1	
- Monitoring Report			
Start date, crediting period and duration			
Environmental impacts			
Project Owner- Identification and communication			
Others (such as supporting documents, revised templates etc.)	3	3	
Total	5	5	

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	Corrective action requests were raised during the verification assessment related to the consistency in ER values and also for additional supporting documents etc. The NSL team via its consultant has responded satisfactorily and hence there is no open finding, also there is no FAR.
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 (tCO2/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 (t CO_2/MWh) Therefore, **For Scope-1: Biomass co-gen unit:** $BEy = ELBL,GR,y \times EFEG,GR,y$ BEy = **6,17,072 tCO_2e** **For Scope-2: Bioethanol production for blended biofuel** BEy= **64,434 tCO2/yr**

	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 = 8063.05 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 vantage/year based on the conservative grounds. = 6,69,432 tCO2e (i.e., 6,69,432 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 6,08,933 CoUs (i.e. for both the scopes).** **Breakup of the two scopes and annual ER estimations are reported under the Appendix 5.**
Findings	Nil
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.

GCEES hereby confirms the following;

Reporting period : From 01/01/2013 to 31/12/2022

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

Details	Value	Unit
Total net baseline emissions (BE)	6,69,432	tCO2e
Total project emission (PE)	0	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	6,08,933	tCO2e (rounded down)

D.6.2. Vantage 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)	84334.16	1083.60	83251.00	3564.90	0	3564.00
Year 2 (2014)	115965.19	880.20	115085.00	3922.63	0	3922.00
Year 3 (2015)	91382.79	752.40	90630.00	17204.18	0	17204.00

Year 4 (2016)	70476.66	1247.40	69229.00	21796.11	0	21796.00
Year 5 (2017)	29871.72	588.20	29284.00	68.53	0	68.00
Year 6 (2018)	28966.75	847.57	28119.00	0.00	0	0.00
Year 7 (2019)	48071.99	835.42	47237.00	4028.14	0	4028.00
Year 8 (2020)	57083.82	591.98	56492.00	5755.51	0	5755.00
Year 9 (2021)	46230.44	515.97	45714.00	8093.79	0	8093.00
Year 10 (2022)	40681.36	720.31	39961.00	0.00	0	0.00
Total =	**613064.86**	**8063.05**	**605002.00**	**64433.78**	**0.00**	**64430.00**

Final Estimates after adjustment for Scope-1:

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)	ER for Scope 2 (Bioethanol Blending)	TOTAL NET ER (CoUs)
	Net ER (tCO2e)	Net ER (tCO2e)	(MP 1 under UCR)
Year 1 (2013)	74926	3564	78,490
Year 2 (2014)	103577	3922	1,07,499
Year 3 (2015)	81567	17204	98,771
Year 4 (2016)	62306	21796	84,102
Year 5 (2017)	26356	68	26,424
Year 6 (2018)	25307	0	25,307
Year 7 (2019)	42513	4028	46,541
Year 8 (2020)	50843	5755	56,598
Year 9 (2021)	41143	8093	49,236
Year 10 (2022)	35965	0	35,965
Total =	**544503**	**64430**	**608933**

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	**13,35,400**	**tCO2e**
Fina Net GHG emission reductions (ERs) achieved for the current monitoring period (after gross-to-net adjustment factor):	**6,08,933**	**tCO2e**
Thus, % variation in ERs	**-54.40%**	
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:

Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	2013: 86,815 CoUs (unit tCO2eq)
	2014: 1,19,007 CoUs (unit tCO2eq)
	2015: 1,07,834 CoUs (unit tCO2eq)
	2016: 91,025 CoUs (unit tCO2eq)
	2017: 29,352 CoUs (unit tCO2eq)
	2018: 28,119 CoUs (unit tCO2eq)
	2019: 51,265 CoUs (unit tCO2eq)
	2020: 62,247 CoUs (unit tCO2eq)
	2021: 53,807 CoUs (unit tCO2eq)
	2022: 39,961 CoUs (unit tCO2eq)
Total:	**6,69,432 CoUs** (6,69,432 tCO2eq)

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

Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	2013: 78,490 CoUs (unit tCO2eq)
	2014: 1,07,499 CoUs (unit tCO2eq)
	2015: 98,771 CoUs (unit tCO2eq)
	2016: 84,102 CoUs (unit tCO2eq)
	2017: 26,424 CoUs (unit tCO2eq)
	2018: 25,307 CoUs (unit tCO2eq)
	2019: 46,541 CoUs (unit tCO2eq)
	2020: 56,598 CoUs (unit tCO2eq)
	2021: 49,236 CoUs (unit tCO2eq)
	2022: 35,965 CoUs (unit tCO2eq)
Total:	**6,08,933 CoUs** (6,08,933 tCO2eq)

Hence, final approved CoUs for issuance at UCR = 6,08,933.

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

>>

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,
Ravikant Soni (Mr.)	Ravi Kant Soni is a certified lead auditor for Lead Auditor ISO 14001:2004&Lead Auditor ISO 14064:2006 GHG Inventory and verification. He has more than 10 years of work experience across Climate Change, Environmental Management & Monitoring, Health & Safety Management, and Statutory Compliance. He was involved in more than 100 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1 technical area 1.2., 3.1. 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 M.I.T.S Gwalior Jiwaji University Gwalior, India. In this current UCR verification, Ravikant is acting as the Technical Reviewer and conducted required review of the assessment as per UCR requirements,

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, 05/03/2024	Ok
2a	PO	Final MR	Version 02, 15/05/2024	Ok
2b	PO	Final Approved MR	Version 02.1, 10/07/2024	OK
3	PO	ER sheet	Version 01, 05/03/2024	Ok
4a	PO	Final ER sheet	Version 02, 15/05/2024	Ok
4b	PO	Final ER sheet	Version 02.1, 10/07/2024	Ok
5	PO	Registered PCN	Version 01, 05/09/2023, 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:	22/03/2024
Project Title:	Carbon Credit Generation Project by NSL Sugars Ltd. at Koppa, Karnataka.
UCR ID:	369
Verification Period:	01/01/2013 to 31/12/2022
Expected date of Response from Project proponent:	21/04/2024

Type	Date	Reference
Clarifications & Documentation	20/03/2024	UCR Monitoring Report, version 01, dated 05/03/2024

Description of the Non Conformance

1. PP is requested to provide all supporting documents related to the project and the current monitoring period in a consolidated folder with tagging.
2. PP is requested to submit the project specific photos and videos as on current date, for verification purposes.
3. PP is requested to review the CoUs claimed under the section A.1 and to update the table section under the cover page of the MR.
4. There are few incomplete section in the MR, page 7. Kindly Clarify.
5. PP is requested to provide Screenshot of the geo-coordinates of the Koppa Plant.
6. PP is requested to provide more details under the Section B.1 of the MR
7. PP is requested to complete the Additional Parameter tables under the Page 43 and 47 of the MR. Also, the data sets to be included under the ER sheet for reporting purposes.
8. The final version of the MR should be kept with values consistent across the MR & ER sheet. The date & version numbers of the MR & ER shall be updated during the next submission by PP.
9. PP is requested to submit the supply agreements with OMCs for the bioethanol or any equivalent document which can establish the supply, purpose, outcome etc.
10. PP is requested to provide Declaration of No-Double Accounting as per UCR Requirement.

1st Response from Project Owner/Representative	Date	15/05/2024

1. PP hereby confirms that all supporting documents are submitted to Audit team.
2. The specific photos and videos from the project plants are submitted to the verification team.
3. The CoU values are now updated consistently in the MR.
4. The incomplete sections in the MR are now completed with specific information.

5. The geo-coordinates of the Koppa plant are now reconfirmed and shared.
6. The more details are included in the section B.1 of the MR.
7. The additional parameters are now included under the parameter table under the Page 43 and 47 of the MR.

Also, the ER sheet is now updated to include the additional data parameters.

8. The MR version is now updated to keep all values consistent with the ER sheet. The ER sheet and MR both are now updated in version and date.
9. As communicated during the audit process, the agreement copies with the OMCs are generally confidential and difficult to release as public information. However, PP
10. PP is now submitting the signed version of the Declaration of No-Double Accounting as per UCR template.

Submission from PP:

1) All supporting documents as listed above during the responses.
2) Revised UCR Monitoring Report, version 02, dated 15/05/2024
3) Revised ER sheet, version 02, dated 15/05/2024

1st Assessment by Audit Team	**Date**	25/06/2024

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 (both CARs and CLs) 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.

2nd Assessment by Audit Team	**Date**	10/07/2024

The final approved versions of the UCR documents re-issued by the audit team on 10th July 2024. This re-issuance is done based on resubmission of MR & ER by PP after applying Gross-to-Net adjustment factor for the ERs specific to the biomass-based power generation unit, which is as per UCR guidelines. Hence, final approved versions are released accordingly.

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:

$ELBL,GR,y$	6,85,635	MWh
$ELBL,GR,y$ = $ELBL$,net,exp		
$ELBL$,net,exp = ELco-gen,project – ELcap,n		
$EL_{co\text{-}gen,project}$	10,82,589.00	MWh
$EL_{cap,n}$	3,96,953.56	MWh
$EL_{PJ,imp,y}$	8,063.05	MWh
UCR recommended emission factor ($EFEG,GR,y$)	0.9	tCO2 /MWh
Baseline ER for the current MP =	**6,17,072**	**tCO2e**
Project emission for discounting in current MP =	**7,257**	**tCO2e**

ER for Scope 1 (Biomass co-gen)
Net-to-gross adjustment of 10% as per UCR guidance for biomass projects
Net ER after deduction (tCO2e)
74926.00
103577.00
81567.00
62306.00
26356.00
25307.00
42513.00
50843.00
41143.00
35965.00
544503.00

Carbon Scope 2:

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

$Q_{bioeth,y}$		17668.84	tons
BF_y		**20387.13**	**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
Conversion from Lit to tons	0.000783	tons/Litre	(density)
BE_y	**64434**		**tCO2**

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)	TOTAL NET ER (CoUs)
	Net ER (tCO2e)	Net ER (tCO2e)	(MP 1 under UCR)
Year 1 (2013)	74926	3564	78,490
Year 2 (2014)	103577	3922	1,07,499
Year 3 (2015)	81567	17204	98,771
Year 4 (2016)	62306	21796	84,102
Year 5 (2017)	26356	68	26,424
Year 6 (2018)	25307	0	25,307
Year 7 (2019)	42513	4028	46,541
Year 8 (2020)	50843	5755	56,598
Year 9 (2021)	41143	8093	49,236
Year 10 (2022)	35965	0	35,965
Total =	**544503**	**64430**	**608933**

Final Approval of this report:	**Name: Vivek K Ahirwar** **Date: 11/07/2024**
Signature & Stamp: