



VERIFICATION REPORT FOR “RECAST ENERGY LOUISVILLE FUEL SWITCH FROM COAL TO BIOMASS FOR THERMAL ENERGY”

Document Prepared by “SustainCERT S.A.”

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Client	Recast Energy Louisville, LLC

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Summary:

A description of the verification of the project:

The verification of the project titled “Recast Energy Louisville Fuel Switch from Coal to Biomass for Thermal Energy”, VCS ID – 1386 (hereafter called Project activity), has been undertaken by SustainCERT, with accordance to the relevant VCS standard, V4.7^{/1/}, VCS Program Guide, V4.4^{/2/} and relevant requirements of the ISO 14064-2 and ISO 14064-3, as well applicable criteria for consistent project operations, monitoring and reporting have been applied for verification.

The project involves the operation of a biomass-fired boiler system at the Recast Energy Louisville facility, replacing the previous coal-fired boiler system. The project contributes to significant GHG emission reductions by utilizing biomass, a renewable energy source (mill residue, logging residue and crop residue) thereby avoiding fossil fuel emissions. It has resulted in measurable, real, and verifiable reductions in GHG emissions through steam generation for industrial use and displacing fossil fuel-based systems.

Purpose and Scope of Verification:

Purpose:

The verification service provided by SustainCERT for the project activity is to perform an independent periodic verification for the monitoring period from 01/01/2022 to 31/03/2023 (both days inclusive), as part of the crediting period from 01/04/2013 to 31/03/2023. The first and last days have been verified from the emission reduction calculation sheets and relevant project documentation. The verification is an independent review and ex-post determination by SustainCERT of the monitored reductions in GHG emissions achieved during this period, in accordance with the Verified Carbon Standard Version 4.7, the VCS Program Guide Version 4.4, the project baseline, and host party criteria.

Scope:

The scope of the verification is to establish and verify that:

- The project activity has been implemented and operated in accordance with the approved and registered Project Design Document (PDD).
- All physical components and features of the project, including energy efficiency measures such as insulation, air sealing, central heating system improvements, and monitoring equipment, are in place as specified in the registered PDD^{/5/}.

- The monitoring report and other supporting documents provided are complete and in compliance with the latest applicable version of the VCS Standard Version 4.7.
- The actual monitoring systems and procedures align with those described in the approved monitoring plan and methodology, including any applicable tools and standardized baselines, where relevant.
- The data recorded and stored for GHG emission reductions follow the requirements of the monitoring methodology, including any applicable tools or standardized baselines, ensuring accurate and verifiable emission reductions.

The Monitoring Period:

The project activity is undergoing its 7th verification for the monitoring period from 01/01/2022 to 31/03/2023 (both days included), as part of its crediting period from 01/04/2013 to 31/03/2023.

The Method and Criteria used for Verification:

Desk Review: A comprehensive desk review was conducted, including a verification of project information, the monitoring plan, and its key components. This included reviewing the monitoring frequency, data collection systems, metering equipment, calibration requirements, and the quality assurance and quality control system against the registered PDD and the applicable VCS Standard Version 4.7. The applied methodology AMS-I.C, Version 19: “Thermal energy production with or without electricity” was reviewed to ensure alignment with the registered PDD^{5/} and to verify its proper application throughout the monitoring period. The assessment included a detailed evaluation of the project’s data monitoring system, calibration records for steam meters, and QA/QC systems.

Onsite audit:

- Interviews were conducted with relevant personnel to confirm the implementation of the project, with a focus on operational and data collection procedures, in accordance with the registered PDD and the applied methodology.
- A thorough cross-check was performed of the information provided in the monitoring report against relevant evidence such as data sources, and other documents referenced in Appendix 2 of the report.
- A detailed review of the calculations for estimating GHG emissions was carried out to ensure accuracy and compliance with the applicable standards.
- An evaluation of data management systems, as well as the quality assurance and quality control mechanisms, was conducted to assess their influence on the generation and reporting of emission reductions.

The number of findings raised during verification:

A risk-based approach was followed for the verification of the project. 02 CARs, 02 CLs, and 00 FARs were raised during the verification. All issues raised were successfully resolved, details of which can be found in Appendix 3 of the report.

Any uncertainties associated with the verification:

The assessment team thoroughly reviewed the monitoring report and the emission reduction calculation sheet against relevant evidence and applicable VCS requirements, including VCS Standard Version 4.7 and VCS Program Guide Version 4.4. It was concluded that there are no remaining uncertainties associated with the project.

Summary of the Verification Conclusion:

The review of the monitoring report, the emission reduction calculation sheet, along with relevant supporting evidence, and the interviews conducted with relevant personnel during the site visit held on 14/11/2024 has provided the assessment team with sufficient evidence to confirm compliance with the applicable criteria and meet a reasonable level of assurance. SustainCERT confirms that the project activity "Recast Energy Louisville Fuel Switch from Coal to Biomass for Thermal Energy" has been successfully implemented in accordance with the registered Project Design Document and the applied methodology AMS-I.C, Version 19 meeting all relevant VCS requirements.

Based on the information reviewed and evaluated, we confirm that the monitoring period from 01/01/2022 to 31/03/2023 is in place and accounts for significant reductions in GHG emissions of 58,375.6 tCO₂e by displacing fossil fuel emissions with biomass fuel. These reductions are a direct result of steam generation using the biomass boiler system at the facility.

The management of Recast Energy Louisville LLC is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions, as outlined in the project's Monitoring Plan and as per the registered Project Design Document^{/5/}.

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1 INTRODUCTION

1.1 Objective

The verification of the project titled “Recast Energy Louisville Project” (VCS ID – 1386) has been undertaken by SustainCERT, as requested by Recast Energy Louisville LLC, for the monitoring period 01/01/2022 to 31/03/2023. This verification is the final periodic verification (7th verification) for the project’s crediting period 01/04/2013 to 31/03/2023 as registered under the Verra Registry ([Project Page - VERRA](#)). The purpose of the verification is to conduct an independent review of the project information and confirm:

- The project activity has been implemented and operated in accordance with the registered PDD^{/5/}.
- All physical components (energy efficiency measures, project equipment, monitoring, and metering equipment) are in place.
- The actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan, the approved methodology including applicable tools, and where applicable, the approved standardized baseline.
- The data collection procedures, records, and retention are in accordance with the monitoring methodology AMS-I.C, Version 19: Thermal energy production with or without electricity^{/7/} and the registered Project Design^{/5/} Document.

The verification followed the requirements mentioned in the VCS Standard, Version 4.7^{/1/}, and the VCS Program Guide, Version 4.4^{/2/}, ensuring the quality and consistency of the report.

1.2 Scope and Criteria

The scope of verification for this project activity involves an independent and objective review and ex-post determination of the monitored reductions in GHG emissions, as reported by the project proponent in the monitoring report, emission reduction calculation sheet, and other supporting evidence (as mentioned in Appendix 2 of the verification report) made available to the verification team for the monitoring period from 01/01/2022 to 31/03/2023. This verification has been carried out in accordance with:

- VCS Standard, Version 4.7^{/1/}
- VCS Program Guide, Version 4.4^{/2/}

- Applied methodology “AMS-I.C, Version 19: Thermal energy production with or without electricity”^{/7/}
- Other relevant rules and requirements, including host party requirements.

A risk-based approach was followed during the verification of the project activity, identifying and assessing high-risk areas to ensure the reliability of the reported GHG emission reductions. The verification process applied the principles of accuracy, completeness, relevance, reliability, and credibility, combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considered both quantitative and qualitative information on emission reductions, ensuring compliance with all applicable standards. This verification does not provide any consultancy to the client. However, any clarifications, corrective actions, or forward actions requested during the process may serve as input for improvements in future monitoring activities.

1.3 Level of Assurance

The level of assurance achieved for the project verification falls under a reasonable level of assurance. The verification of the project activity is conducted by doing a thorough assessment of Monitoring report^{/8/}, Registered PD^{/5/}, emission reduction calculation sheet^{/9/} and all the relevant documents mentioned in appendix 2 of the report.

Sufficient amount of evidence was gathered by the assessment team to reduce the risk associated with audit process.

1.4 Summary Description of the Project

The project activity “Recast Energy Louisville Project” (VCS ID – 1386) is implemented by Recast Energy Louisville LLC in Louisville, Kentucky, with the primary objective of reducing GHG emissions through the replacement of a coal-fired boiler system with a biomass-fired boiler system. The project utilizes renewable biomass resources such as wood chips and sawdust to generate steam for industrial use, significantly reducing reliance on fossil fuels and associated GHG emissions. The thermal energy generated from biomass boiler is sold to Lubrizol and Zeon chemicals, project customers, located adjacent to the facility, as verified from on site, project documentation and previous verifications of the project.

This project addresses the environmental impacts of industrial steam production by leveraging biomass, which is a renewable energy source with a lower carbon footprint compared to coal. The activities are aligned with the applied methodology AMS-I.C, Version 19: “Thermal energy production with or without electricity”^{/7/}, as described in the registered PD^{/5/}. By displacing coal with biomass, the project achieves measurable reductions in GHG emissions, contributing to global climate change mitigation.

During this verification period, a field audit was conducted on 14/11/2024 details for which can be found in section 2.3 and 2.4. Interviews with the Project Proponent and relevant personnel confirmed the proper implementation of the project activity. The review confirmed that all the energy efficiency measures have been implemented as planned, and data collection procedures for emission reductions have been followed in accordance with the registered monitoring plan^{/5/}.

The start date of the project activity is 10/12/2012, as verified from the PD and previous verification report^{/11/} and the crediting period for the project runs from 01/04/2013 to 31/03/2023 (renewable, twice). The information verified during the onsite audit was cross-checked with the monitoring plan, project documentation and previous reports, and other relevant documents, confirming compliance with all VCS requirements.

Based on the review of the monitoring report, emissions reduction calculation, and onsite audit, it has been verified that the project has achieved 58,375.6 tCO₂e emission reductions for the monitoring period from 01/01/2022 to 31/03/2023. As a result, the assessment team confirms that the project activity has been implemented and is operational in accordance with the applicable standards, and a reasonable level of assurance has been met.

2 VERIFICATION PROCESS

The Registered Project activity has been undergoing 7th Verification under Crediting period from 01/04/2013 to 31/03/2023 (renewable, twice), the approach adapted to ensure the quality and credibility of emission reduction is described in the following sections.

2.1 Method and Criteria

The method and criteria used for verification consist of the following phases:

A risk-based approach has been applied for the process.

Desk review:

- To verify the completeness of the data and the information presented in the monitoring report, emission reduction calculation sheet^{/9/} and other evidence like Implementation records, contracts, retrofit studies including all the other evidence mentioned in Appendix 2 of the report were strategically reviewed and risk assessment was undertaken.
- Project activity sources contributing to the leakage as well as project emissions are assessed.
- Evaluation of the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

Onsite audit for the project was conducted on 14/11/2024 to:

- Interview of the project representatives and to confirm the implementation and operational status of the project with respect to the registered monitoring plan^{/5/}.
- Review the data flow for generating, aggregating and reporting the monitoring parameters,
- Confirm the correct implementation of procedures for operations and data collection,
- Cross-check the information provided in the MR documentation with other sources,
- Check the monitoring equipment against the requirements of the PD and the approved methodology, including calibrations, maintenance, etc.,
- Review the calculations and assumptions used to obtain the GHG data and ER,
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

Further, details regarding the process of onsite audit have been mentioned in sections 2.3 and 2.4 of the report. Resolution of all the issues and findings raised, and the final verification statement was issued.

2.2 Document Review

As part of the verification of the project, the primary activity performed was the strategic review and risk assessment of the documents submitted using a dedicated protocol. A detailed review of the Monitoring Report and the Emission Reduction calculation sheet was conducted to assess the following:

- The completeness of the information in reference to the registered Project Design Document.
- A review of the project information, particularly focusing on the monitoring plan, including monitoring frequency, metering equipment calibration requirements, and the quality assurance and quality control system, in alignment with the registered PDD and the applicable VCS Standard Version 4.7^{/1/} and methodology AMS-I.C, Version 19: “Thermal energy production with or without electricity”^{/07}
- An assessment of the QA/QC procedures to ensure that the project implementation follows the requirements outlined in the registered PDD^{/5/}.

All other supporting evidence reviewed is detailed in Appendix 2 of this report. Cross-checks were conducted between the information provided in the Monitoring Report^{/8/}, the VCS PDD^{/5/}, and independent sources, where available. The verification team also applied sectoral and local expertise to ensure the accuracy of the reported information and, where necessary, carried out independent background investigations to confirm compliance.

2.3 Interviews

In accordance with VCS standard, V4.7^{/1/}, site visit requirements, “A site visit that includes a visit to facilities and/or project areas shall be conducted at verification under the following circumstances: 1) The first verification of the project after validation; 2) Verifications that include project baseline reassessments; and 3) Verifications that assess a project description deviation where the deviation impacts the applicability of the methodology, additionality or the appropriateness of the baseline scenario.” The project was currently undergoing 7th verification, and the last site visit was conducted 05/04/2019 and along with that it was the first time for SustainCERT to conduct the verification of this project. Therefore, a site visit was conducted for this verification on 14/11/2024^{/10/}. During the onsite audit for this verification, interview of the relevant project personnel, its representatives and local stakeholders were conducted verifying the implementation and operational status of the project, the similar information was also cross verified using the evidence submitted by PP (as mentioned in appendix 2 of the report). Detail of the personnel interviewed can be found in the table below:

Date of onsite: 14/11/2024

S.No	Name of the person	Affiliation	Details Discussed	Team member
1	Matthew Markee	Recast Energy	Project implementation, Monitoring, and measuring system. Collection of measurements Observations of established practices for verification of monitoring parameters, project boundary, biomass delivery system, Emission reduction calculation, environmental concerns, entities involved, property rights, benefit sharing. Project participation in any other program	Muskan Chawla Leandro Pena Salvatico
2.	Donna Wirick	Environmental, Health and Safety Manager (Recast Energy)		
3.	Thomas Harper	Recast Energy		
4.	Rick Vinson	Assistant Manager (Recast Energy) - Stakeholders	Project operation, grievance mechanism, Employee benefits and wellbeing, environment concerns	Leandro Pena Salvatico
5.	Jesse Gore	Assistant Manager (Recast Energy) - Stakeholders		

By the interview it was concluded that the local people/ employees were aware of the grievance mechanism and there were no negative comments received from local stakeholder's. Instead, the local people appreciated the development and job created by the project activity in that area. Stakeholder grievance procedure was also checked in details during on-site visit and interview process with PP^{/10/}. Thus, a reasonable level of assurance was met.

2.4 Site Visits

As Discussed above, the physical site visit for the project was conducted for the current verification. Details and description of areas assessed can be found below:

Duration of the On-Audit: 16/02/2024			
S.No	Assessment Criteria	Means of Verification	Assessment Opinion
1	The assessment of the implementation and operation of the registered project activity	Registered PD ^{/5/} and Validation report Interviews with PP ^{/10/}	The information mentioned with reference to project implementation, operation and commissioning in MR is found consistent with the documents and information received during interviews.
2	A review of information flows for generating, aggregating and reporting the monitoring parameters.	Customer invoices ^{/15/} and emission reduction calculation sheet were. Interviews with PP ^{/10/}	The information related to flows for generating, aggregating and reporting the monitoring parameters mentioned in MR is found to be consistent with documents crosschecked and also inline with applied methodology ^{/7/} information related to monitoring was also cross checked by interviews with PP and its representative.

3	Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD	Customer Invoices ^{/15/}	Monthly invoices are being cross checked. All the information related to operational and data collection is found to be inline with the PD ^{/5/} and MR ^{/8/} .
4	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including the tools applied	Calibration records ^{/16/} Interviews with PP ^{/10/}	Calibration records were verified, and monitoring practices were verified with interview from PP, and it has been observed that all the practices are found to be in line with the PD.
6	A review on calculation of emission reductions	Monthly Invoices ^{/14/} emission reduction calculation sheet	Values mentioned for ER calculation are found to be inline with the monthly invoices. Methods, formulae, and emission factors for calculating baseline emissions have been followed in accordance with the applied methodology ^{/7/} .

7	An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	Monthly Invoices ^{/14/}	Methods, formulae, and emission factors for calculating baseline emissions have been followed in accordance with the applied methodology ^{/7/} . All the QA/AC procedures were also verified on-site.
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It is noteworthy that no sampling plan was followed for crosschecking of emission reduction verification calculation, 100% data is verified for the current monitoring period using the invoices^{/14/}. Most of the reference document referred by the assessment team (above table) are checked and verified during the desk review, hence is deemed authentic.

The assessment team has verified all the primary supporting related to operations, quality, and generation of data during the monitoring period like invoices raised by PP, calibration details, interview with onsite persons etc. The photographs^{/24/} were only used as means of secondary cross check of the information verified from Primary sources. This is the 7th monitoring period, therefore, all the information regarding project capacity, commission and monitoring system are already verified in previous monitoring report which are also cross checked with previous reports. Thus, a reasonable level of assurance is achieved.

2.5 Resolution of Findings

As discussed above, a risk-based approach has been applied for the verification of the project activity. During the verification, the assessment team identified the issues which could impact the accuracy and the credibility of the emission reduction claimed by the project, The details analysis of the issues raised the approach used to resolve these issues can be found in Appendix 3 of this report.

A corrective action request was raised if:

- Modifications to the implementation, operation, and monitoring of the registered project activity have not been sufficiently documented by the project participants.
- Mistakes have been made in applying assumptions, data, or calculations of emission reductions that will impact the number of emission reductions.

A clarification request was raised if:

- Information is insufficient or not clear enough to determine whether the applicable requirements have been met.

A Forward action request was raised if:

- If the monitoring and reporting require attention and/or adjustment for the next verification period.

During verification a total of 02 CARs, 02 CLs and 00 FARs were raised. The details of all the issues communicated to the PD can be found in the Appendix 3. The issues raised were closed successfully.

2.6 Eligibility for Validation Activities

There is no validation activity undertaken as a part of current verification.

3 VALIDATION FINDINGS

3.1 Methodology Deviations

There is no methodology deviation identified during the current monitoring period from 01/01/2022 to 31/03/2023. The project activity is in line with the applied methodology. The quantification of GHG emission reductions followed the conservative approaches as required by the methodology, ensuring accuracy and credibility in the reported results. No deviations were applied that would impact the conservativeness of the GHG emission reductions or removals.

However, There are some of the methodology deviations which were approved in the validation and initial verification of the project, the details for which can be found below. These deviations include adjustments for parameters such as QsteamQ , ECy, EFgrid,CM,y, and FCDiesel,loader,y, which deviate from the standard requirements of the applied methodology AMS-I.C, Version 19 (as mentioned in section 3.2.1 of Monitoring report).

The verification team confirms that:

1. All deviations were appropriately validated in prior verification periods and are consistent with the registered Project Design Document.
2. These deviations are justified based on technical accuracy, conservativeness, and alignment with project circumstances.
3. No additional methodological deviations were applied for this monitoring period.

Therefore, it is concluded that previously valid deviations remain valid and applicable during this monitoring period.

3.2 Project Description Deviations

There is no Project Description Deviation identified during the current monitoring period.

3.3 New Project Activity Instances in Grouped Projects

There are no new project activity instances added as the project activity is fuel switch project.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

The project activity has not undergone any baseline reassessment during the current monitoring period.

4 VERIFICATION FINDINGS

4.1 Project Details

The group project activity, “Recast Energy Louisville Project” (VCS ID – 1386), is an industrial energy efficiency project aimed at GHG emissions through the replacement of a coal-fired boiler system with a biomass-fired boiler system. The project generates thermal energy using renewable biomass resources, including wood chips and sawdust, significantly reducing reliance on fossil fuels as verified from previous verification reports ^{/11/}.

The project activity has been implemented in accordance with the methodology AMS-I.C, Version 19^{/7/}. As per the methodology, the measures implemented fall under the category of renewable thermal energy production. The utilization of biomass as the primary fuel source ensures significant GHG emission reductions through the displacement of coal as the baseline fuel. This results in measurable, real, and verifiable reductions in energy-related emissions. The biomass inputs and steam outputs have been verified through records of biomass deliveries^{/17, 19/} and steam flow invoices^{/15/}.

The Project Proponent for the project is Recast Energy Louisville LLC, whose representatives were interviewed during the onsite. The project activities have been independently verified during site visits conducted on 14/11/2024^{/10/}. It has been confirmed that all operational activities, including the use of monitoring systems and data collection procedures, align with the guidelines outlined in the registered PDD.

The start date of the project activity is 10/12/2012, and this was verified during the audit, with references to the monitoring and verification reports from earlier periods. The project is undergoing verification for the monitoring period from 01/01/2022 to 31/03/2023, during which the biomass boiler system has successfully generated renewable thermal energy, achieving significant GHG emission reductions of 58,375.6 tCO₂e.

The details and calculations of the GHG emission reductions have been reviewed and found to comply with the applied methodology AMS-I.C, Version 19^{/7/}. The calculations align with the project’s Monitoring Report and the guidelines outlined in the VCS Standard. Input values for monitoring parameters, including biomass consumption, steam production, and thermal energy outputs, were cross-checked against the data provided by the PP, including supplier invoices, steam meter logs^{/15/}, and other relevant documentation mentioned in appendix 2 of the report.

The project’s monitoring system is operational and fully compliant with applicable quality assurance standards. The biomass delivery records^{/17/}, as well as the calibration logs for the steam and feedwater meters, were reviewed and verified during the onsite audit^{/10//16/}, confirming that the data collection systems are accurate and reliable. The QA/QC measures in place ensure the credibility and traceability of the reported GHG reductions. During the onsite audit, it was concluded that the project has been implemented as per the requirements of the registered VCS PDD. Throughout the current monitoring period, no unforeseen incidents or events were observed that could negatively impact the operation or effectiveness of the project activity, although generation of steam did vary depending upon the demand from customers.

Item	Evidence gathering activities, evidence checked, and assessment conclusion:		
Audit history	The project activity is undergoing its 7th verification under its first crediting period from 01/04/2013 to 31/03/2023. The assessment team has verified the audit history using the Project webpage and reviewed the first verification for the project, which is also published under Verra.		
	1st Verification	VCS	01-April-2013--31-December-2014
	2nd Verification	VCS	01-January-2015 – 31-December-2017)
	3rd Verification	VCS	01-January-2018 - 31-December-2018
	4th Verification	VCS	01-January-2019 - 31-December-2019
	5th Verification	VCS	01-January-2020 - 31-December-2020
	6th Verification	VCS	01-January-2021 - 31-December-2021
	7th Verification	VCS	01-January-2022 - 31-March-2023)
	It has been concluded that the information provided in Section 1.2 of the Monitoring Report is accurate and appropriate for this verification period.		
Double counting and participation under other GHG programs	The project activity is not registered under any other GHG and non-GHG program or registry. This has been confirmed		

	by means of research on relevant applicable registries and available information in public domain. The assessment team has searched for similar projects having same nature, capacity and project proponent. The name of the owners mentions in the regulatory licenses are also matched and checked. It was concluded that no such projects having same location and geo-coordinates, technology or project/legal owners are registered in any of the various carbon schemes like CDM (https://cdm.unfccc.int/Projects/projsearch.html), GCC (https://www.globalcarboncouncil.com/), and Gold Standard (https://registry.goldstandard.org/projects?q=&page=1).
No double claiming with emissions trading programs or binding emission limits	The project activity has been thoroughly searched on the various websites of various emission trading programs. It has been found that project is not part of any emission trading scheme, additionally it was confirmed by interviewing PP and its representatives that project activity is not part of any other registry and it is not claiming credits in any other registry.
No double claiming with other forms of environmental credit	As discussed above the, the project has been thoroughly researched in all the currently active environment schemes and found that the project is not registered with any other environmental credits. Therefore, it can be concluded that the project is not claiming credits with any other schemes.
Supply chain (scope 3) emissions double claiming	Not applicable as project is a fuel switch project.
Sustainable development contributions	The project activity targets several Sustainable Development Goals (SDGs): 1. SDG 7 – Affordable and Clean Energy:

	The project successfully replaced 562.50 TJ of energy generated from coal combustion with renewable energy (biomass) during the current monitoring period. Over its lifetime, the project has replaced 4902.73 TJ of fossil fuel-derived energy with clean energy sources, aligning with the SDG target of increasing the renewable energy share in total energy consumption. The reported impacts have been cross-verified against project operational records^{/11//6/} and energy consumption calculations^{/9/}. 2. SDG 12 – Responsible Consumption and Production: The project diverted 79,569 tons of wood residuals from landfilling and open burning to sustainable use as biomass fuel during the monitoring period. Over its lifetime, 702,075 tons of wood residuals have been repurposed for energy production. The reported data was verified against delivery records^{/17/} and alignment with the SDG target of environmentally sound waste management. 3. SDG 13 – Climate Action: By replacing coal with biomass, the project has avoided 58,376 tCO₂e of GHG emissions during the monitoring period and 507,066 tCO₂e cumulatively since its inception. Emission reduction calculations have been reviewed for consistency with the approved methodology and corroborated with operational data and emission factors. The verification team has confirmed that the project activities and their contributions to the SDGs are implemented as reported in the monitoring report.
Additional information relevant to the project	No commercially sensitive information has been excluded by the PP.

Based on the above information assessment team concludes:

1. There are no material discrepancies between project implementation and the project description provided in the registered PD^{/5/}.
2. The monitoring plan is implemented completely and the monitoring system (i.e., process and schedule for obtaining, recording, compiling, and analysing the monitored data and parameters) is appropriate.

3. There are no material discrepancies between the actual monitoring system, the monitoring plan set out in the project description, and the applied methodology^{/7/}.
4. The GHG emission reductions or removals generated by the project have not been included in an emissions trading program or any other mechanism that includes GHG allowance trading as verified through the independent research and through interview with PP.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	Evidence was gathered related to project documentation, including validation reports and previous verification reports ^{/11/} . The stakeholder list includes biomass suppliers, employees, and local community representatives. No changes in stakeholder makeup were observed during the monitoring period.
Legal or customary tenure/access rights	Reviewed agreements and contracts for land access ^{/23/} and biomass procurement ^{/19/} . Evidence includes local government ^{/13//14//23/} permissions. No violations of legal or customary rights were identified. The project complies with all access rights regulations.
Stakeholder diversity and changes over time	Project documentation was reviewed and onsite audit for the project was also performed and it has been observed that stakeholder categories remain consistent with those identified at the project's inception.
Expected changes in well-being	Reviewed documentation on Operating permits ^{/14/} local community impacts and benefits, including job creation records and employee records ^{/18/} . As the project is related to reduced coal dependency it is bringing positive changes in well-being were confirmed, especially in terms of improved air quality and economic benefits for local suppliers.

Location of stakeholders	Stakeholders are primarily located within the Louisville region, close to the project site, with suppliers providing biomass within the vicinity as verified from the delivery receipts ^{/19/} . This has been cross checked from on-site audit ^{/10/}
Location of resources	Confirmed through delivery records ^{/19/} . The biomass used in the project is sourced from local wood processing facilities and suppliers within a 200-km radius. Resources are sustainably managed and sourced in compliance with project requirements.

4.2.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	Stakeholder consultations were not conducted during the initial stages of the project, as it was not a requirement under the VCS program at that time. During the current monitoring period, the verification team confirmed that stakeholders have been engaged informally through project activities and communications, with no negative feedback reported. Stakeholder can log complaint at recast main gate and also at the recast website information is available https://recastenergy.com/contact/ .
Date(s) of stakeholder consultation	No formal stakeholder consultation dates are recorded due to the lack of a requirement during project validation and initial implementation. However, informal engagement with stakeholders (e.g., biomass suppliers, local community representatives) occurred during regular project operations. During onsite visit ^{/10/} as well plant personal responsible for operation were interviewed.
Communication of monitored results	While no formal stakeholder consultation sessions were held, monitored results were communicated informally during regular project operations and through updates shared with key stakeholders such as biomass suppliers.
Consultation records	All the records are formally stored in the email format, however during this monitoring period it has been confirmed that there are no negative complaints received.
Stakeholder input	No negative feedback was received during the current monitoring period. Informal interactions with stakeholders indicate general

support for the project and its benefits, including environmental improvements and economic contributions.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	The FPIC process was not required under the VCS framework during the initial stages of the project. During the verification, it was confirmed that no activities were conducted on land requiring FPIC, and no conflicts related to land use or access were identified. Evidence includes review of project documentation, contracts with biomass suppliers, and land-lease agreements ^{/23/} .
Outcome of FPIC discussion	Since FPIC was not applicable to this project, no formal discussions or processes were conducted. The project activities have been implemented on industrial premises and biomass was procured from commercial suppliers, ensuring no encroachment on indigenous or local community rights.

4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	No grievances were received during the current monitoring period. This was confirmed through a review of the grievance log and interviews with the Project Proponent during the onsite audit.
Grievance redress procedure	The grievance redress mechanism is established and accessible to all stakeholders, it was confirmed during the interview with PP and its representatives on site. The procedure includes channels for submitting grievances via email, telephone (details can be checked through recast official website, https://recastenergy.com/contact/), or on facility gate. During the verification, it was confirmed that stakeholders are aware of the

procedure, and no concerns regarding its accessibility were reported.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
No Comments were received during this monitoring period.	Not applicable, as there are no new comments received.	Not applicable, as there are no new comments received.

4.2.6 Risks to Local Stakeholders and the Environment

4.2.6.1 Management Experience

The verification team has interacted with recast project management team (details can be found in section 2.3 of the report) and confirms that their expertise aligns with the project's ambitious goals.

The roles and responsibilities of the personnel were verified against project documentation and organizational charts. Their expertise was assessed based on their involvement in the operation, monitoring, and reporting of the project activities. Evidence also included qualifications and prior experience in managing similar industrial operations and ensuring compliance with environmental and operational standards.

4.2.6.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human induced risks to stakeholders' wellbeing	Evidence gathered includes operational risk assessments, employee handbooks ^{/11/} , and training records ^{/22/} . No significant risks to stakeholders' well-being, either natural or human-induced, were identified during the verification process. The project involves the implementation of energy efficiency measures, which have a positive impact on the local community. Additionally, the requirement is introduced after the project validation.
Risks to stakeholder participation	Evidence includes project implementation records, correspondence logs, and employee training materials ^{/22/} . There are no identified barriers or risks to stakeholder participation. The project proponent has ensured that stakeholders remain informed.

Working conditions	Verified against project documentation, employee handbooks, and training records. Safe working conditions were confirmed for all project workers, with no reported incidents during the monitoring period. The training provided ensures adherence to safety standards and operational guidelines. Safety manuals ^{/24/} were also reviewed during onsite audit.
Safety of women and girls	Confirmed through interviews, training records, and employee handbooks. No gender-specific risks were identified. The project proponent has ensured an inclusive approach in all project activities.
Safety of minority and marginalized groups, including children	Reviewed project records, and employee handbooks. No risks to minority or marginalized groups were identified. The project operates in compliance with relevant social and ethical standards.
Pollutants (air, noise, discharges to water, generation and release of hazardous materials and chemical pesticides and fertilizers)	Verified compliance with environmental regulations, training records, and project monitoring data. No pollutants or hazardous materials were identified during the project's activities, and the project actively reduces emissions by decreasing reliance on fossil fuels. All the information related to Ash control equipment was verified, and ash is sent offsite for other beneficial uses and Air pollution permission document was also verified ^{/14/} .

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	Evidence reviewed includes employee handbooks, training records, and interviews with project personnel. No incidents of discrimination were identified during the monitoring period. Policies against discrimination were confirmed to be in place.
Sexual harassment	Training records and employee interviews were reviewed to assess the workplace environment. No reports or allegations of sexual harassment were identified.

Gender equity in labor and work	Reviewed employment records, training documentation, and interviews with project personnel. The project proponent demonstrates gender equity in labor practices, ensuring equal opportunities for all employees and contractors.
Forced labor	No evidence of forced labor was identified. All employees and contractors were found to be working voluntarily under legal contracts.
Child labor	No evidence of child labor was identified in project activities. The project proponent complies with labor laws prohibiting child labor.
Human trafficking	Interviews with personnel and contractors, along with records of recruitment practices, were reviewed. No evidence of human trafficking was identified. The project adheres to ethical recruitment practices, ensuring no exploitation occurs.

4.2.7.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Reviewed project policies, training records, and interviews with project personnel and stakeholders. No evidence of human rights violations was identified.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Reviewed land lease agreements, project documentation, and stakeholder interviews. No impact on Indigenous Peoples' rights was identified. The project is implemented in areas without known Indigenous populations or land-use conflicts.

4.2.7.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
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Not applicable	Reviewed land tenure and access agreements, project documentation, and conducted stakeholder interviews. No infringement on legal or customary property rights was identified. The project operates on legally leased properties.
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4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	The project activity is fuel switch project, therefore no benefit sharing activity applicable as per project.
Benefit sharing during the monitoring period	The project activity is fuel switch project, therefore no benefit sharing activity applicable as per project.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	No risk identified. As per the monitoring report, there was no risk assessment related to biodiversity and ecosystems during this period. However, Project has obtained required permits from Air pollution control districts ^{/14/} , Ash control equipment ^{/24/} along with appropriate measures were implemented as verified on site
Soil degradation and soil erosion	There was no risk identified related to soil degradation and soil erosion during this period.
Water consumption and stress	There was no risk identified related to water consumption and stress during this period.

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	There was no risk assessment related to species and habitat during this period.
Areas needed for habitat connectivity	There was no risk assessment related to Areas needed for habitat connectivity during this period.

	Evidence gathering activities, evidence checked, and assessment conclusion
Habitats for rare, threatened, and endangered species	There was no risk assessment related to habitat of species during this period.
Areas for habitat connectivity	There was no risk assessment related to Areas needed for habitat connectivity during this period

4.2.8.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	There was no risk assessment related to introduction of species during this period.

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
NA	There was no risk assessment related to Existing invasive species during this period.

	Evidence gathering activities, evidence checked, and assessment conclusion
Invasive species	There was no risk assessment related to Invasive species during this period.

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	There was no risk assessment related to ecosystem conservation during this period.

4.3 Accuracy of Reduction and Removal Calculations

The assessment team reviewed the data and parameters used to calculate the GHG emission reductions reported in the Monitoring Report for the period 01/01/2022 to 31/03/2023. The data includes:

- Fuel usage records^{/20/}, steam flow data^{/15/}, and steam meter calibration results^{/16/}.
- Baseline parameters and project parameters used in the emission reduction spreadsheet.

The emission reduction calculation^{/09/} sheet was reviewed to confirm the accuracy of calculation of emission reductions achieved by the project in line with the applied methodology AMS-I.C. Version 19.^{/07/}.

Baseline emissions were recalculated and cross-verified against the Project Design Document (PDD) and Monitoring Plan to ensure consistency.

Default values where applied, were assessed for their appropriateness and compliance with the VCS Program Rules and the applied methodology, AMS-I.C., Version 19^{/07/}. Data sets were cross-checked to ensure no manual transposition errors occurred between the Monitoring Report, GHG spreadsheets, and supporting evidence (mentioned in appendix 2 of the report).

The assessment team confirms that the calculation and data are authentic. The quality of the supporting documents submitted for verification is adequate. The assessment team has checked the quality and maintenance of the supporting documents during the on-site visit to confirm the authenticity of the documents and to verify the appropriate calculations. The assessment team confirms that proper evidence is available for the whole monitoring period, and the same is verifiable. The data collection system meets the requirements of the monitoring plan and the applied methodology according to the assessment carried out. The assessment team thus confirms that the quality of evidence to determine the GHG reductions is satisfactory, and detailed information regarding roles and responsibilities has been provided in the monitoring report.

4.4 Quality of Evidence to Determine Reductions and Removals

The data and parameters recorded for the project are in compliance with the registered Project Description Document ^{/5/} and the monitoring report. The assessment team has cross-checked all parameters used for calculating emission reductions against evidence provided by the PP, details can be found in appendix 2 of the report. It has been observed that all the sources provided are appropriate and acceptable.

The monitoring conducted for all parameters aligns with the applied methodology (AMS-I.C.^{/7/}), and thus, can be considered accurate and reliable. The equipment, including meters, complies with the appropriate quality standards relevant to the project's technology. This verification confirms that the data collection and monitoring systems in place meet the requirements of the monitoring plan and the methodology.

Fixed parameters:

S.no	Parameter	Value	Means of verification
1.	NCVDiesel, y	0.1464	Value has been verified from the previous verification, there is no change in the value during this MP
2.	EFCO2,Diesel, y	0.0693	Value has been cross verified from previous and is from national default value.
3.	EffDiesel,process j,y	Forestry residues = 1.54	Value has been cross verified from previous verification reports.
4.	EFCO2, Coal	88.44 (GCV Basis) tCO2/TJ	Value has been cross verified from previous and is from national default value.
5.	DBL,Thermal	83.43%	Value has been verified from the previous verification, there is no change in the value during this MP

Data and Parameters Monitored: All the parameters applied in the project have been assessed:

1. EGthermal,y, The net quantity of steam/heat supplied by the project activity during the year y

Means of verification	Measuring /Reading /Recording frequency	Yes, the value for the parameter will be monitored annually.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is inline with the monitoring plan.
	Monitoring value	The monitored values are: 448.85 TJ (2022) and 113.65 TJ (2023), verified using calculations provided in the emission reduction sheet.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable (NA). There is no specific monitoring equipment used, as the values are calculated.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	NA. There is no physical measuring equipment; values are derived from calculation.

	Is(are) calibration(s) valid for the whole reporting period?	NA. No calibration required as the values are calculated using the provided formula.
	How were the values in the monitoring report verified?	The values were cross-checked using the emission reduction sheet and validated against the formula provided: $EG_{thermal,y} = Q_{steam,y} * (h_{steam} - h_{f \text{ feedwater}}) * 1.055E-9.$
	If applicable, has the reported data been cross checked with other available data?	Yes. The reported data were cross-checked with supporting evidence, including energy balance and steam enthalpy values.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. QA/QC procedures have been reviewed and found adequate for accurate reporting. Manual errors were not observed during verification.
	In case project participants have temporarily not monitored the parameter, has either deviation?	No deviation observed. The parameters were monitored and calculated as per the monitoring plan.
Findings	No Finding has been raised.	
Conclusion	The monitoring values and parameters reported are consistent with the monitoring plan and applied methodology. The reported reductions were calculated correctly, and the data management processes ensure reliable and accurate transfer of data.	

2. EF_{grid}, CM_{,y}, Combined margin emission factor for the grid in year y

Means of verification	Measuring /Reading /Recording frequency	Once per verification period.
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	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency of monitoring and reporting is consistent with the requirements of the monitoring methodology, and the most recent data has been used for calculations.
	Monitoring value	The monitored value is 0.427 tCO ₂ e/MWh for 2022 and 2023, derived from the USEPA eGrid 2022 Summary Table (Region SRTV, Tennessee Valley).
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not Applicable, as this parameter is sourced from an external data repository (USEPA eGrid) rather than direct monitoring equipment.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable, as no direct measurement equipment is used; rather, the SAP model is applied by certified professionals.
	Is(are) calibration(s) valid for the whole reporting period?	Not Applicable, as there is no physical equipment requiring calibration.
	How were the values in the monitoring report verified?	The values were cross-checked with the USEPA eGrid 2022 Summary Table (Region SRTV), confirming the reported value of 0.427 tCO ₂ e/MWh is accurate and up to date.

	If applicable, has the reported data been cross checked with other available data?	Yes, the data was cross-checked with publicly available USEPA resources for grid emission factors.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data was sourced from the most recent and credible source (USEPA eGrid), and the values were accurately transferred into the emissions calculation sheet without any inconsistencies.
	In case project participants have temporarily not monitored the parameter, has either deviation?	Not Applicable, as this parameter is externally derived and no deviation occurred in its usage.
Findings	No finding raised.	
Conclusion	The parameter EF_grid, CM, y (0.427 tCO ₂ e/MWh) has been verified to align with the most recent data from USEPA eGrid 2022. It is accurately applied in the emission reduction calculations as required.	

3. TDLy Average technical transmission and distribution losses for providing electricity to the project in year y

Means of verification	Measuring /Reading /Recording frequency	Annual record is checked.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	For 2022 and 2023: 0.051

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not Applicable. No equipment is required for this parameter as values are sourced from secondary data (USEPA eGrid).
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not Applicable. No calibration required as data is derived from published sources.
	Is(are) calibration(s) valid for the whole reporting period?	Not Applicable.
	How were the values in the monitoring report verified?	The values for TDly were verified against the USEPA eGrid Table 1 (Region SRTV) as mentioned in the monitoring report.
	If applicable, has the reported data been cross checked with other available data?	Yes. The reported data (0.051) was cross-checked with the most recent version of the USEPA eGrid 2022 Summary Table.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data transfer and reporting processes follow the project's QA/QC requirements, ensuring accuracy in calculation and reporting.
	In case project participants have temporarily not monitored the parameter, has either deviation?	Not Applicable. This parameter relies on published emission factors and does not require direct monitoring.

Findings	No finding raised.
Conclusion	The parameter TDLy is consistent with the monitoring plan, methodology, and project description. The value of 0.051 aligns with the most recent USEPA eGrid 2022 report and was verified accordingly.

4. Qsteam,y, The quantity of steam generated by the project activity (Boiler #4) in year y

Means of verification	Measuring /Reading /Recording frequency	Continuous monitoring is done.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	2022: 429,088,200 lbs 2023: 108,292,600 lbs
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The ABB Vortex Flowmeter FV4000 was calibrated at startup and serviced in 2021 ^{/16/} . Accuracy verified as per manufacturer's specifications. Calibration not required annually as per manufacturer guidelines. (further details can be found in the calibration section below)
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes, calibration at installation and verified by qualified technicians as verified from the calibration certificates ^{/16/} .
	Is(are) calibration(s) valid for the whole reporting period?	Yes, calibration is valid for whole period.

	How were the values in the monitoring report verified?	The steam meter values were cross-checked with process control system logs and reconciled against customer delivery steam meters for accuracy.
	If applicable, has the reported data been cross checked with other available data?	Yes, Cross-checked with customer steam meters and monthly invoices.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Daily totals are transcribed and aggregated monthly. QA/QC processes, including reconciliation of all boiler steam meters, were reviewed.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No deviation was observed during the reporting period.	
Conclusion	The steam meter readings have been verified as accurate, consistent, and in accordance with the monitoring plan and applied methodology.	

5. Hsteam, The enthalpy of steam as it leaves the biomass boiler.

Means of verification	Measuring /Reading /Recording frequency	Hourly basis
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	The monitored values are 1197.46 Btu/lb for 2022 and 1197.55 Btu/lb for 2023.

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes. The steam pressure is monitored using a pressure meter (transducer) in accordance with the monitoring plan and standards.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes. The pressure meter is serviced by a qualified technician at least once every three years to verify installation and operation.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. The meter was evaluated in 2021, and the manufacturer's specifications do not require regular calibration.
	How were the values in the monitoring report verified?	Values were verified using automated recordings and calculations based on thermodynamic tables (IAPWS IF-97). Cross-referencing with process logs confirmed data accuracy.
	If applicable, has the reported data been cross checked with other available data?	Yes. The reported data were cross-checked with steam production logs, and calculation tools used for enthalpy.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The project has QA/QC procedures ensuring correct data transfer, with verified calculations and proper documentation throughout the reporting period

	In case project participants have temporarily not monitored the parameter, has either deviation?	No deviation occurred. The parameter has been monitored consistently as per the monitoring plan requirements.
Findings	No finding raised.	
Conclusion	The monitoring of h_steam is accurate and reliable. Values were determined and verified in line with the monitoring plan, thermodynamic standards, and QA/QC procedures.	

6. h,feedwater, The enthalpy of boiler feed water as it enters the biomass boiler (Boiler #4).

Means of verification	Measuring /Reading /Recording frequency	Hourly and recorded at least once
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	For 2022: 205.9 Btu/lb For 2023: 202.8 Btu/lb
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The temperature monitoring equipment, consisting of RTDs (Resistance Temperature Detectors) and thermowells, is calibrated during start-up and evaluated every three years. The most recent evaluation occurred in 2021 ^{16/}
	Is the calibration of measuring equipment carried out by an accredited person or institution?	The manufacturer does not recommend recalibration, but performance is validated during evaluations.

	Is(are) calibration(s) valid for the whole reporting period?	The calibration is valid for this MP.
	How were the values in the monitoring report verified?	Values reported for enthalpy were cross-checked using Microsoft Excel calculations based on IAPWS IF-97 thermodynamic standards. Supporting data and calculations have been verified.
	If applicable, has the reported data been cross checked with other available data?	Enthalpy values are derived from pressure readings and temperature monitoring, cross-checked with thermodynamic properties of water and steam.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC procedures ensure data accuracy by validating calculations with established thermodynamic standards. QA/QC compliance was confirmed during the verification process.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	
Conclusion	The parameter h_feedwater values are accurate, reliable, and determined in accordance with the monitoring plan and applied methodology (IAPWS IF-97).	

7. FCDiesel, loader, y, Quantity of diesel fuel used by the front-end loader and any other onsite fuel moving equipment

Means of verification	Measuring /Reading /Recording frequency	Invoices are recorded.
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	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	Verified the total diesel consumption as reported in fuel invoices: 10,505.30 gallons for 2022 and 2,717.00 gallons for 2023 ^{/20/} .
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable, as no specific equipment is used. Diesel consumption data is based on verified fuel invoices ^{/20/} provided by the supplier.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable; data is sourced directly from verified invoices.
	Is(are) calibration(s) valid for the whole reporting period?	Not applicable.
	How were the values in the monitoring report verified?	Verified fuel consumption data against supporting invoices provided by the PP. Summation of invoices matched the reported values in the monitoring report.
	If applicable, has the reported data been cross checked with other available data?	Yes, the fuel data was cross-checked with invoice records and diesel purchase logs.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, data management follows QA/QC protocols in line with the monitoring plan, ensuring data integrity and reliability in reporting.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	
Conclusion	The diesel fuel consumption data (FC_diesel, loader, y) has been recorded and reported accurately as per the monitoring methodology. All evidence, including invoices and QA/QC procedures, was reviewed and found to comply with the project's monitoring plan and methodology.	

8. ECy, Power consumed by the project activity

Means of verification	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	For 2022: 1,957 MWh For 2023: 489 MWh

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable – as no specific monitoring equipment is used, the data originates from engineering studies ^{/25/} .
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable – no physical monitoring equipment applies; engineering studies are the data source.
	Is(are) calibration(s) valid for the whole reporting period?	NA
	How were the values in the monitoring report verified?	Values in the report were verified through cross-checking the engineering study for pre- and post-project conditions.
	If applicable, has the reported data been cross checked with other available data?	Yes. Cross-checked with plant equipment records and engineering study to validate net electricity usage changes.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The data transfer was reviewed for consistency and accuracy in the reported emission reductions.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	

Conclusion	The parameter ECy was monitored using validated engineering studies ^{/25/} . The data presented was cross-checked for consistency and aligns with the project's monitoring plan and applied methodology. No calibration of equipment was required, and the reported values have been verified as accurate and complete.
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9. DAFbiomass delivery, Estimated round-trip delivery distance

Means of verification	Measuring /Reading /Recording frequency	Each delivery ticket
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	Value for 2022: 17,979 km Value for 2023: 922 km
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable. Measurement is based on delivery tickets ^{/17/} and Maps ^{/26/} , which meet the requirements of the monitoring plan.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable, as no monitoring equipment is used for this parameter.
	Is(are) calibration(s) valid for the whole reporting period?	NA

	How were the values in the monitoring report verified?	The round-trip distances were reviewed using delivery tickets and cross-verified with Maps for accuracy.
	If applicable, has the reported data been cross checked with other available data?	Yes, data was cross-checked with archived delivery records and previously developed round-trip distance tables.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, data management follows QA/QC protocols in line with the monitoring plan, ensuring data integrity and reliability in reporting.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	
Conclusion	The recorded round-trip delivery distances are accurate, reliable, and compliant with the monitoring methodology.	

10. DAF, ash delivery, Estimated round-trip delivery distance

Means of verification	Measuring /Reading /Recording frequency	Each delivery ticket
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	For 2022: 0 Km For 2023: 0 Km

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	NA
	Is the calibration of measuring equipment carried out by an accredited person or institution?	NA
	Is(are) calibration(s) valid for the whole reporting period?	NA
	How were the values in the monitoring report verified?	Delivery tickets and the supporting distance calculation were cross-checked against project documentation. Round-trip distances were calculated using Maps, ensuring accuracy.
	If applicable, has the reported data been cross checked with other available data?	Yes, the recorded values were verified against the developed table of distances for delivery points used during the monitoring period.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, data management follows QA/QC protocols in line with the monitoring plan, ensuring data integrity and reliability in reporting.

	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding was raised.	
Conclusion	The monitoring of delivery distances for ash resulted in a value of zero for the reporting period (2022 and 2023). The QA/QC procedures were appropriately followed, ensuring data accuracy.	

11. EFF_{ty}, Fuel efficiency for tractor trailers

Means of verification	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	Value for 2020: 9.98 km/gal (6.2 miles/gal), as reported in the June 2022 TEDB update.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	NA.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	NA

	Is(are) calibration(s) valid for the whole reporting period?	NA
	How were the values in the monitoring report verified?	The values were verified against the published data in the Transportation Energy Data Book, Edition 40 (Table 5.2, 2020 data), ensuring accuracy and alignment with the monitoring methodology.
	If applicable, has the reported data been cross checked with other available data?	Yes, the parameter value was cross-checked with the TEDB publication and confirmed as appropriate for the monitoring period.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, data management follows QA/QC protocols in line with the monitoring plan, ensuring data integrity and reliability in reporting.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	
Conclusion	The parameter value (9.98 km/gal) used for fuel efficiency aligns with the most recent version of the TEDB and is valid for the reporting period. No discrepancies or issues were identified.	

12. Qbiomass,j,y, Quantity of biomass residues of type j delivered to the project activity, as received.

Means of verification	Measuring /Reading /Recording frequency	Each truck load ^{/19/}
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	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, measuring and reporting frequency is in accordance with registered monitoring plan and methodology.
	Monitoring value	Value monitored for 2022: 66,067 tons, for 2023: 13,502 tons
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, truck scales are calibrated ^{16/}
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes, the calibration of truck scales was performed by qualified personnel in compliance with national standards.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, calibration records confirm validity for the entire reporting period.
	How were the values in the monitoring report verified?	Verified using delivery tickets, truck weigh scale data.
	If applicable, has the reported data been cross checked with other available data?	Yes, the data were cross-checked with supplier invoices and delivery tickets to ensure accuracy.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, data management follows QA/QC protocols in line with the monitoring plan, ensuring data integrity and reliability in reporting.
	In case project participants have temporarily not monitored the parameter, has either deviation?	NA
Findings	No finding raised.	
Conclusion	The parameter Qbiomass,y has been monitored and reported accurately in line with the monitoring plan, calibration requirements, and QA/QC protocols. The data provided is reliable, consistent, and verifiable.	

Calibrations:

All the calibration records related to steam flow meter, steam pressure and temperature meters were verified^{/16//10/}. The requirement of calibration is for 3 years and it has been observed all the meters were calibrated for entire monitoring period.

The net biomass delivered to the site is measured using the truck scale. Delivery tickets^{/19/} were check to identify the net delivery amount and distance travelled for delivery. Distance was then cross check for some of the tickets on the sample basis using google maps^{/26/} to check the accuracy of leakage assessment. Records of calibration for truck scale were also verified^{/16/} to make sure it meets the records of annual calibration, calibration took place in 2021, 2022 and 2023 records for all the 3 years were submitted^{/16/}. Therefore, it was concluded that calibration is valid for the entire monitoring period.

It was conformed on site that project uses DCS (distributive control system) to record the boiler parameters that are then compiled into a spreadsheet performance report, which are further used to raise the invoices to the two customer^{/15/}.

Project emissions for the project: The verification team conducted an independent review of the project emissions reported for the monitoring period, ensuring they align with the approved methodology^{/07/} and the registered monitoring plan^{/05/}. The assessment included:

All project emissions sources, such as fuel consumption (*FCdiesel,loader,y*), power consumption (*ECy*), and grid electricity transmission losses (*TDLy*), were verified against corresponding source data, including fuel invoices, energy usage records, and engineering

studies.

The formulas and calculation methods used to determine project emissions were reviewed to confirm compliance with the methodology. Specific parameters, such as:

- Diesel consumption for equipment operation^{/20/},
- Power consumed by the project activity^{/25/},
- Grid emission factors and transmission losses,
were validated, and default values were confirmed to be sourced from the latest available references (e.g., eGRID).

The verification team confirms that the reported project emissions have been calculated accurately and are in accordance with the registered monitoring plan and the applied methodology. The calculations are traceable, consistent, and reliable, with no findings raised.

Leakage assessment for the project: The verification team conducted an independent assessment of the leakage emissions reported for the monitoring period, ensuring full compliance with the applied methodology and the registered monitoring plan. The assessment included:

Identification of Leakage Sources:

The leakage emissions considered for the project primarily include:

- Biomass delivery distance (*DAFBiomass delivery*)^{/17/}
- Ash delivery distance (*DAFAsh delivery*)

These parameters were verified using delivery tickets, electronic logs, and validated distances sourced from mapping tools.

Data Sources and Accuracy:

- The round-trip delivery distances for biomass and ash were reviewed for accuracy.
- The QA/QC procedures for verifying delivery tickets and summation of distances were checked and found to align with the methodology.
- Where applicable, all round-trip distances below 400 km were excluded as per the applied methodology requirements.

The verification team confirms that the reported leakage emissions have been calculated accurately, transparently, and in line with the registered monitoring plan and methodology. The data sources, calculations, and QA/QC procedures were found to be robust, with no significant findings or discrepancies raised.

In conclusion, the QA sampling approach demonstrates alignment with the requirements of the applied methodology and reinforces the credibility of the project's emission reduction claims. The assessment confirms that the QA sampling process meets the methodology's standards, supporting a reasonable level of assurance regarding the integrity and quality of the emission reduction data.

In accordance with the above details the verification team confirms that:

- A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under this of this report.
- The complete monitoring data is also presented in the corresponding ER sheet and final version of the monitoring report.
- The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under this of this report.
- The calculations of baseline emissions as presented in the corresponding ER sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan^{/5/} and the applied methodology^{/7/}.
- All assumptions used in the emission calculations were found appropriate and therefore accepted.
- Appropriate emission factors and other reference values have been correctly applied.

4.5 Non-Permanence Risk Analysis

Not applicable as it is group project.

5 VERIFICATION OPINION

5.1 Verification Summary

The project activity VCS – 1386, “Recast Energy Louisville Fuel Switch from Coal to Biomass for Thermal Energy,” has undergone its 7th verification with a monitoring period from 01/01/2022 to 31/03/2023 (including both days). Recast energy is responsible for the overall project management, analysis, aggregation, preparation (including conversion factors, assumptions, methodology, and calculations), and presentation of activities and related GHG data in public disclosures (such as the monitoring report, emission reduction calculation sheet, submitted documents, emails, and communications). The verification engagement is based on the assumption that the GHG data provided is complete, sufficient, accurate, and free from material misstatements.

SustainCERT applies its own quality management system and compliance policies for quality control, in accordance with ISO/IEC 17029:2019 – Conformity Assessment Requirements for Validation and Verification bodies providing environmental information (ISO 14065:2020) and greenhouse gas audit (ISO 14064-3:2019) standards, and maintains a comprehensive quality control system including documented policies and procedures to ensure compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

We have complied with the VCS standard^{1/} and other applicable requirements during the verification engagement and maintained independence throughout. SustainCERT was not involved in preparing any statements, reports, or data except for this Verification Statement and Report. SustainCERT maintains complete impartiality with respect to all stakeholders interviewed during the verification process. SustainCERT has not provided any services to Recast or its subsidiaries within the scope of verification that could compromise the independence or impartiality of our work. SustainCERT disclaims any liability or co-responsibility for any decision a person or an entity might make based on this verification statement regarding the issuance and utilization of VCUs hereby verified and certified. The verification was carried out from Oct 2024 to Dec 2024 by a team of qualified GHG auditors.

5.2 Verification Conclusion

The verification of the project titled “Recast Energy Louisville Fuel Switch from Coal to Biomass for Thermal Energy,” VCS ID – 1386, has been undertaken by SustainCERT, as requested by Recast energy, the project proponent, for the monitoring period from 01/01/2022 to 31/03/2023 (including both days), as reported in the latest submitted version of the monitoring report. The project activity has been implemented in accordance with the registered monitoring plan in PD^{/5/}. It is our responsibility to provide an independent verification statement on the reported GHG emission reductions from the project activity.

SustainCERT’s verification approach was based on understanding the risks associated with reporting GHG emission data and the controls in place to mitigate these risks. SustainCERT planned and conducted the verification by obtaining sufficient evidence, information, and explanations that we deemed necessary to provide reasonable assurance that the reported GHG emission reductions are accurately represented.

In our opinion, the GHG emission reductions reported for the project activity for the period 01/01/2022 to 31/03/2023 (including both days) are fairly stated in the latest submitted version of the project monitoring report. The GHG emission reductions were calculated accurately based on the approved baseline and monitoring methodology AMS – I.C. version 19 and the monitoring plan contained in the PD^{/1/}.

Verification period: From 01/01/2022 to 31/03/2023

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
YEAR 1 (01-January 2022 – 31-December 2022)	47578.5	984	18.3	46,576.1	0	46,576.1
YEAR 2 (01-January 2023 – 31-March 2023)	12047.3	246.9	0.94	11,799.5	0	11,799.5
Total	59,625.8	1230.9	19.24	58375.6	0	58,375.6

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
YEAR 1 ((01-July 2022 – 31-December 2022)	53,610	46576.1	13.12	The difference in Ex- ante and Ex post is due to difference in demand by the customers, it was verified from the means of interview and further cross verified form invoices provided by the PP related to steam demand.
YEAR 2 (01-January 2023 – 31-December 2023)	13,402	11,799.5	11.96	
Total	67,012	58,375.6	12.89	

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Use the table below to describe the commercially sensitive information included in the monitoring report to be excluded in the public version.

Section	Information	Justification	Assessment method and conclusion
NA			

APPENDIX 2: TABLE OF REFERENCE

S. No	Document Title	Version	Date
1.	VCS standard <u>VCS Program Details - Verra</u>	4.7	21/03/2024
2.	VCS guidelines <u>https://verra.org/wp-content/uploads/2023/08/VCS-Program-Guide-v4.4.pdf</u>	4.4	29/08/2023
3.	Validation and Verification Manual <u>https://verra.org/wp-content/uploads/2018/03/VCS_Validation_Verification_Manual_v3.2.pdf</u>	3.2	19/10/2016
4.	VCS Project Webpage, VCS ID - 1396 <u>https://registry.verra.org/app/projectDetail/VCS/1386</u>	-	-
5.	Project Description <u>https://registry.verra.org/app/projectDetail/VCS/1386</u>	2.7	12/4/2014
6.	Validation report <u>https://registry.verra.org/app/projectDetail/VCS/1386</u>	17	05/12/2014
7.	Applied Methodology - AMS-I.C. for Small Scale Thermal Energy Projection without Electricity	19	-
8.	Monitoring report (01012022 to 31032023)		24/04/2025
9.	Emission reduction calculation sheet	-	Corresponding to MR
10.	Onsite audit	-	14/11/2024
11.	Previous Verification Report	1.0	11/02/2023
12.	Previous Monitoring report	6.3	07/02/2023
13.	Certificate of Domestication	-	-
14.	Title V operating permit (permission by Louisville Metro Air Pollution Control District) Renewal letter as of 3 rd June 2024	-	-
15.	Customer Invoices for the Steam flow	-	(01012022 to 31/032023)

16.	Meter calibrations - Flow meters (once every 3 year – last in 2021) - Feed water temperature - Truck scale	-	-
17.	Biomass truck scale record	-	-
18.	Employee handbook	-	-
19.	Wood tickets for 2022 to 2023 (delivery receipt for biomass material (e.g., chips, sawdust, etc.) transported to a facility)	-	-
20.	Diesel Fuel Purchase summary – 2022 and 2023	-	-
21.	Union Agreement (labour agreement or contract for Recast Energy Systems, LLC, It outlines terms and conditions between the employer and a union representing employees)	-	-
22.	Employee Training handbook	-	-
23.	Lease agreement between landlord and recast energy	-	-
24.	Photographic evidences- Furnace Ash control equipment Safety material PCL cabinet Boiler design Diesel storage tank Truck scale	-	-
25.	EC study record (for parameter ECy)	-	-
26.	Google maps (https://www.google.com/maps)		

APPENDIX 3: FINDINGS

Rule	Assessment Question	Findings/Comments (CAR 1)	Developer Response
VCS Standard, v4.7 Monitoring report template	Template guidelines,4.4	The submitted monitoring report deviates from the approved VCS Monitoring Report Template in several sections where required tables have been either removed or not completed as per the template guidelines. As per VCS guidelines, project proponents are required to adhere strictly to the approved Monitoring Report Template without making structural modifications. The following sections must be revised accordingly: Section 1.5: The table in this section must be restored and filled in as per the template requirements. Section 2: The table in this section must be restored and completed as per the approved template guidelines. Section 5.4: The table comparing ex-ante and ex-post values must be reinstated and	The monitoring report has been revised per the approved VCS Monitoring Report Template and has been provided through the SustainCert portal on 12/11/2024

Rule	Assessment Question	Findings/Comments (CAR 1)	Developer Response
		completed as required. The project proponent must revise the monitoring report to ensure all required tables are included and completed as per the approved VCS Monitoring Report Template. Additionally, All the template guidelines form MR shall also be removed.	
	Rd 2	The monitoring report has been reviewed and verified to ensure compliance with the approved VCS Monitoring Report Template, version 4.4. The required tables in Sections 1.5, 2, and 5.4 have been reinstated and completed as per the template guidelines. Additionally, all template guideline notes have been appropriately removed from the report. Therefore, the finding stands closed. #Closed.	

Rule	Assessment Question	Findings/Comments (CAR 2)	Developer Response
VCS Standard, v4.7 Monitoring report template	Excel sheet	Observation: - Errors were identified in the calculations within the Steam Meters sheet of the submitted Excel file. These errors may impact the accuracy of reported data. - The linkage between the table Metered Steam and Boiler Feedwater Enthalpies (from another sheet) and the Steam Meters sheet is missing, leading to potential inconsistencies in data calculations and reporting. As per the monitoring and reporting requirements, all calculation errors must be corrected, and proper linkages between relevant tables and sheets must be established to ensure data consistency and traceability. Therefore, PP shall correct the error in the excel sheet and submit the appropriate evidence for the values used for the calculation in table "Metered Steam and Boiler Feedwater Enthalpies".	Calculation issues for Stem Meters sheet have been resolved.
	Rd 2	The identified errors in the Excel sheet have been corrected, All calculations have been	

Rule	Assessment Question	Findings/Comments (CAR 2)	Developer Response
		reviewed and updated to ensure data consistency and traceability as per the monitoring and reporting requirements. The corrected Excel sheet has been submitted for verification, along with supporting evidence for the values used in the calculations. There fore, the finding stands closed. #Closed.	

Rule	Assessment Question	Findings/Comments (CL 1)	Developer Response
VCS Standard, v4.7 Monitoring report template	Steam Invoices	For parameter – Q_Steam The submitted documentation does not include the complete set of steam invoices for the monitoring period. Specifically, the invoices for the period January 2022 to August 2022 for Customer Zeon are missing. As per VCS monitoring requirements, the project proponent must provide a complete and verifiable record of all invoices covering the monitoring period to ensure accurate reporting of project activities and associated	Invoices for the period January 2022 to August 2022 for customer Zeon were provided. They are found as page 2 of files previously provided: REL-Invoices 20220131 REL-Invoices 20220228 REL-Invoices 20220331 REL-Invoices 20220430 REL-Invoices 20220531 REL-Invoices 20220630

Rule	Assessment Question	Findings/Comments (CL 1)	Developer Response
		emissions reductions. Therefore, The project proponent is requested to submit the missing invoices for Customer Zeon covering the period January 2022 to August 2022 to complete the documentation for the monitoring period.	REL-Invoices 20220731 REL-Invoices 20220831
	Rd 2	The requested invoices for the period January 2022 to August 2022 for Customer Zeon have been reviewed and found to be satisfy the monitoring requirements outlined in the VCS Standard. This finding is therefore considered closed. #closed.	

Rule	Assessment Question	Findings/Comments (CL 2)	Developer Response
VCS Standard, v4.7 Monitoring	Parameter - Power consumed by the project activity	The monitoring report indicates that the parameter ECy (power consumed by the project activity) is based on an engineering study that identifies changes in equipment for Boiler and calculates the net change in	The engineering study for ECy has been provided through the SustainCert portal on 12/8/2024

Rule	Assessment Question	Findings/Comments (CL 2)	Developer Response
report template		electricity usage before and after the project. However, no supporting evidence or documentation of this engineering study has been provided. As per VCS requirements, all data and methodologies used for the calculation of monitored parameters must be supported by verifiable evidence to ensure transparency and accuracy in emission reduction reporting. PP shall provide the engineering study evidence used to determine the value of ECy.	
	Rd 2	The engineering study for the parameter ECy (power consumed by the project activity) has been reviewed and verified it includes sufficient supporting evidence to determine the net change in electricity usage before and after the project. The documentation meets the requirements outlined in the VCS Standard for transparency and accuracy in monitored parameters. Therefore the finding stands closed. #Closed. is therefore considered closed.	

APPENDIX 4: ABBREVIATIONS

CAR	Corrective Action Request
CL	Clarification Request
CO ₂	Carbon dioxide
FAR	Forward Action Request
GHG	Green House Gas
MR	Monitoring report
MWh	Mega watt hour
PD	Project description
PP	Project Proponent
UNFCCC	United Nation Framework Convention on Climate Change
VCS	Verified Carbon standard

APPENDIX 5: COMPETENCY STATEMENT

COMPETENCY STATEMENT	
Name	Muskan Chawla
Years of Experience	2+
QUALIFYING ROLES	
Team Leader	Yes
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / CE Region 6 (Hindi)
Technical Expert	Yes (1.1, 1.2)
Financial Expert	No
Independent Reviewer	Yes
APPROVAL	
Approved by	Head of Quality and Compliance, SustainCERT
Date	05/09/2023

COMPETENCY STATEMENT	
Name	Shivraj Sharma
Years of Experience	19+
QUALIFYING ROLES	
Team Leader	Yes
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / CE Region 6 (Hindi)
Technical Expert	Yes (1.1, 1.2)
Financial Expert	Yes

Independent Reviewer	Yes
APPROVAL	
Approved by	Head of Quality and Compliance, SustainCERT
Date	15/07/2022

COMPETENCY STATEMENT	
Name	Leandro Pena-Salvatico
Years of Experience	4
QUALIFYING ROLES	
Team Leader	No
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / Region 2 (Spanish/Portuguese)
Technical Expert	Yes (1.2, 1.6)
Financial Expert	Yes
Independent Reviewer	No
APPROVAL	
Approved by	Head of Quality and Compliance, SustainCERT
Date	5/15/2024