

Project Verification Report

2021

COVER PAGE	
Project Verification Report Form (VR)	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	Enviance Services Private Limited
Type of Accreditation	☐ CDM or other GHG Accreditation ☒ ISO 14065 Accreditation
Approved UCR Scopes and GHG Sectoral scopes for Project Verification	01 Energy industries (Renewable/Non-Renewable Sources)
Validity of UCR approval of Verifier	30/09/2027
Completion date of this VR	16/07/2026
Title of the project activity	91 MW Sugarcane Bagasse based co-generation Energy Bioenergética AROEIRA
Project reference no. (as provided by UCR Program)	UCR 587
Name of Entity requesting verification service (can be Project Owners themselves or any Entity having authorization of Project Owners, example aggregator.)	FastCarbon Consultoria e Negócios Ltda (Project Aggregator, on behalf of Usina Bioenergética Aroeira S.A.)
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Name: Mr. Fábio Bressani Ribeiro Email ID – fabio.bressani@fastcarbon.com.br
Country where project is located	Brazil
Applied methodologies (approved methodologies by UCR Standard used)	ACM0006: "Electricity and heat generation from biomass" (Ver. 16)
GHG Sectoral scopes linked to the applied methodologies	01 Energy industries (Renewable/Non-Renewable Sources)
Project Verification Criteria: Mandatory requirements to be assessed	☒ UCR Standard ☒ Applicable Approved Methodology

	☒ Applicable Legal requirements /rules of host country ☒ Eligibility of the Project Type ☒ Start date of the Project activity ☒ Meet applicability conditions in the applied methodology ☒ Credible Baseline ☒ Do No Harm Test ☒ Emission Reduction calculations ☒ Monitoring Report ☒ No GHG Double Counting ☐ Others (please mention below)
Project Verification Criteria: Optional requirements to be assessed	☒ Environmental Safeguards Standard and do-no-harm criteria ☒ Social Safeguards Standard do-no-harm criteria
Project Verifier's Confirmation: The <i>UCR Project Verifier</i> has verified the UCR project activity and therefore confirms the following:	The UCR Project Verifier Enviance Services Private Limited, certifies the following with respect to the UCR Project Activity 91 MW Sugarcane Bagasse based co-generation Energy Bioenergética AROEIRA ☒ The Project Owner has correctly described the Project Activity in the Project Concept Note version 2.0 (dated 24/06/2026) including the applicability of the approved methodology ACM0006: "Electricity and heat generation from biomass" (Ver. 16) and meets the methodology applicability conditions and has achieved the estimated GHG emission

	reductions, complies with the monitoring methodology and has calculated emission reductions estimates correctly and conservatively. ☒ The Project Activity is likely to generate GHG emission reductions amounting to the estimated 46,762 tCO_{2e} annually, as indicated in the PCN, which are additional to the reductions that are likely to occur in absence of the Project Activity and complies with all applicable UCR rules, including ISO 14064-2 and ISO 14064-3. ☒ The Project Activity is not likely to cause any net-harm to the environment and/or society ☒ The Project Activity complies with all the applicable UCR rules¹ and therefore recommends UCR Program to register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	Verification Report UCR Reference number: 587 Date of approval: 21-07-2026

¹https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRtermsandconditionsMay2025Ver11_230525172325112351.pdf

Name of the authorised personnel of UCR Project Verifier and his/her signature with date



Vidhya Muralikrishna
Quality Manager
Date: 21-07-2026

PROJECT VERIFICATION REPORT

Executive summary

The project activity is titled “91 MW Sugarcane Bagasse based co-generation Energy Bioenergética AROEIRA”. It is a biomass-based renewable energy project located in Tupaciguara, Minas Gerais, Brazil, developed by Usina Bioenergética Aroeira S.A. with FastCarbon Consultoria e Negócios Ltda as the aggregator. The project harnesses sugarcane bagasse, a by-product of sugar and ethanol production, to generate electricity for captive consumption and export to the Brazilian national grid, thereby reducing greenhouse gas (GHG) emissions by displacing fossil fuel-based electricity generation.

The project comprises three cogeneration units:

- UTE 01 Bioenergética Aroeira – 16 MW (6 MW + 10 MW), operational since July 2014.
- UTE 02 Energética Tupaciguara (CET) – 35 MW (25 MW + 10 MW), operational since May 2020.
- UTE 03 Triângulo Energia – 40 MW, operational since June 2024.

Together, these units provide a total installed capacity of 91 MW. The technology employed is high-pressure steam turbine systems operating on the Rankine cycle, with boilers and turbines supplied by Mitre, Caldema, and TGM Turbinas, and alternators by WEG. The project is fully grid-connected and complies with CDM UNFCCC Methodology ACM0006 (Ver.16) and the UCR Standard for Emission Factor.

The project has generated 274,452 CoUs (tCO₂eq) during the first crediting period from September 1, 2014 to December 31, 2025. Leakage is reported as zero. The baseline scenario assumes that, without this project, electricity would have been generated by fossil-fuel-fired thermal plants connected to the Brazilian grid.

The expected operational lifetime of the project is 20 years, ensuring long-term contribution to Brazil’s renewable energy matrix and sustainable growth. The project has been operational since its earliest commissioning date in 2014 and continues to supply clean energy.

Commissioning dates of the project activity are mentioned in the table below:

Unit	Installed Capacity	Location	Commercial Operation Date
UTE 01 Bioenergética Aroeira	6 MW	Tupaciguara, Minas Gerais	July 2, 2014 (Dispatch nº 2,134 - ANEEL)
UTE 01 Bioenergética Aroeira	10 MW	Tupaciguara, Minas Gerais	July 4, 2014 (Dispatch nº 2,258 - ANEEL)

UTE 02 UTE Energética Tupaciguara (CET)	35 MW (25 MW + 10 MW)	Tupaciguara, Minas Gerais	May 30, 2020 (Dispatch nº 1,544 – ANEEL)
UTE 03 Triângulo Energia	40 MW	Tupaciguara, Minas Gerais	June 11, 2024 (Dispatch nº 1,755) – ANEEL)

Geo-coordinates of the project activity:

- Latitude: -18.7564°
- Longitude: -48.6114°

The project is a greenfield biomass cogeneration initiative that evolved under supportive policies of the Government of Brazil encouraging renewable energy development. It contributes significantly to 16 Sustainable Development Goals (SDGs), including affordable and clean energy (SDG 7), decent work and economic growth (SDG 8), and climate action (SDG 13). Social benefits include job creation (1,500+ employees), training programs, healthcare initiatives, and community projects. Environmental benefits include renewable energy generation, Bonsucro certification for sustainable sugarcane production, and efficient waste management. Economic benefits include biofuel and sugar production, surplus electricity sales, and local economic development.

The Project Activity is a biomass-based cogeneration project and the net generated electricity from the project activity is being provided to the Brazilian national grid by the project proponent, Usina Bioenergética Aroeira S.A., with FastCarbon Consultoria e Negócios Ltda as the aggregator. The project activity involves a sugarcane bagasse-fired cogeneration power plant with a total installed capacity of 91 MW, developed in three phases (UTE 01 – 16 MW, UTE 02 – 35 MW, UTE 03 – 40 MW). The project utilizes high-pressure steam turbine technology operating on the Rankine cycle to generate clean, renewable energy.

The project consists of biomass cogeneration plants located in Tupaciguara, Minas Gerais, Brazil, commissioned by the National Electrical Energy Agency (ANEEL). The plants generate clean energy by utilizing sugarcane bagasse, a renewable residue from sugar and ethanol production, thereby displacing fossil fuel-based electricity generation. The project has been operational since July 2014, progressively expanded in May 2020 and June 2024, and continues to supply renewable electricity to the grid while contributing to significant GHG emission reductions.

The applied technology is considered environmentally friendly, as the operation of the biomass cogeneration plant does not emit GHGs or harmful gases, unlike conventional fossil fuel plants. The project activity has used reliable and proven technology to ensure safe and sustainable implementation.

This project was not registered in any other registries prior to its registration in UCR. The proponent seeks verification under UCR from September 1, 2014 onwards, ensuring no double counting of credits.

The generation of power from sugarcane bagasse-based cogeneration is a clean technology as there is no fossil fuel-fired or GHG gases emitted during the process. Biomass residue from sugar and ethanol production is burned in high-pressure boilers to generate steam, which drives extraction-condensing steam turbines connected to alternators. This process forms the fundamental building blocks of the cogeneration system. Several turbine-generator units together form the complete biomass-based power plant. Thus, the project activity leads to a reduction in GHG emissions as it displaces power from fossil fuel-based electricity generation in the regional grid. Since the project activity generates electricity through renewable biomass, it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

The project also incorporates advanced automation and electrical systems, enabling efficient monitoring and control of operations. It facilitates access to daily generation reports and performance monitoring while enabling both real-time and offline troubleshooting with analytical tools. Without this project, the amount of electricity generated would come from fossil fuel-based power plants, which is the baseline scenario. This renewable energy project reduces emissions and supports sustainable industrial growth through technology transfer and innovation.

The project being a renewable energy generation activity, leads to reduction in fossil fuel dominated electricity generation from the Brazilian grid. The core objective of this project activity is to displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The estimated lifetime of the project activity is considered as 20 years for biomass cogeneration technology. In the pre-project scenario, the entire electricity consumed by the customers or delivered to the grid would have otherwise been generated by the operation of grid-connected fossil fuel power plants and by the addition of new generation sources.

This project generates 91 MW of power which is supplied to the Brazilian national grid system. The applied technology is one of the most environmentally friendly technologies available as the operation of the biomass cogeneration plant does not emit any GHGs or other harmful gases unlike the operation of conventional fossil fuel power plants. The project activity has used reliable and proven technology to ensure that an environmentally safe and sound implementation has been achieved.

The project activity also contributes to SDG goals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16 and 17.

The first crediting period of the project activity in UCR is 11 years and 4 months (September 1, 2014 – December 31, 2025) in which the total estimated electricity generation is 208,000 MWh annually and the total GHG emission reduction achieved is 46,467 tCO₂e annually.

The electricity generation for the current monitoring period is 11,11,319 MWh. Over the entire monitoring period, the project has delivered significant renewable electricity to the Brazilian grid and achieved a cumulative GHG emission reduction of 274,452 tCO₂e, thereby contributing to climate change mitigation efforts.

Scope of Verification

The scope of the services for the project is to perform Project Verification of concerned Project Activity. The scope of verification is to assess the claims and assumptions made in the Project Concept Note (PCN) and Monitoring Report (MR) against the UCR criteria, including but not limited to, UCR program verification guidance document, UCR Standard, UCR Program Manual, and related rules and guidelines established under Program process.

Verification Process and Methodology

The verification process was undertaken by a competent verification team and involved the following,

- Desk review of documents and evidence submitted in context of the reference rules and guidelines issued by UCR,
- Undertaking/conducting site visit/remote audit, interview or interactions with the representative of the project owners/representatives,
- Reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and preparing a draft verification opinion based on the auditing findings and conclusions
- Finalization of the verification opinion (this report)

Desk/Document review

A detailed desk review of the PCN, MR, Methodology and all other associated documentation and references took place in advance of the remote site visit, and additional documents that were not available for the desk review were requested for review during the remote site visit. Additional information can be required to complete the verification, which may be obtained from other public and reliable sources or through telephone and face to face interviews with key stakeholders (including the project developers and where necessary, government and NGO representatives in the host country).

A list of all documents reviewed or referred to in the course of this verification is included in Appendix 3 below.

Follow up interviews/site visit

The verifier conducted remote audit and had requested for site photographs, short videos. A remote interview was conducted with the project owners and stakeholders.

Conclusion

Based on the work performed, the verifier concludes that in the project activity “91 MW Sugarcane Bagasse based co-generation Energy Bioenergética AROEIRA”, the information and data presented in the MR version 2.0 dated 24/06/2026 is in line with the Project Concept Note Version 2.0 dated 24/06/2026 and meets all relevant requirements of the UCR for UCR project

activities. The UCR project activity correctly applies the methodology “ACM0006: Electricity and heat generation from biomass (Ver.16)” leading to result in real, measurable and long-term emission reductions achieved for the current monitoring period.

For the current monitoring period, verified emission reductions achieved by the project activity were as below;

Start date of monitoring period	01/09/2014
End date of monitoring period	31/12/2025
Emission reductions achieved	274,452 tCO ₂ eq

Project Verification team, technical reviewer and approver

Project Verification team

No.	Role	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)	Involvement in		
					Doc review	Off-Site inspection	Interviews
1.	Team Leader/Technical Expert	Mahajan	Swati	Enviance Services Private Limited	Yes	Yes	Yes
2.	Validator/Verifier	Singh	Ritu	Enviance Services Private Limited	Yes	Yes	Yes

Technical reviewer and approver of the Project Verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)
1.	Technical reviewer	Internal	Kumar	Pankaj	Enviance Services Private Limited
2.	Approver	Internal	Krishna	Vidhya Murali	Enviance Services Private Limited

Means of Project Verification

Desk/document review

A detailed desk review of the PCN, MR, methodology and all other associated documentation and references took place in advance of the remote audit, and additional documents that were

not available for the desk review were requested for review during the remote audit. Additional information can be required to complete the verification, which may be obtained from other public and reliable sources or through telephone and face-to face interviews with key stakeholders (including the project developers and where necessary, Government and NGO representatives in the host country).

A list of all documents reviewed or referred to in the course of this verification is included in Appendix 3 below.

Off-site inspection

Date of off-site inspection: 05/06/2026			
No.	Activity performed Off-Site	Site location	Date
1.	a) An assessment of the implementation and operation of the project activity as per the PCN and UCR requirements b) Verification of the project design, as documented is sound and reasonable, and meets the identified criteria of UCR Standard Requirements and associated guidance c) Assessment to conformance with the certification criteria as laid out in the UCR Standards; d) Evaluation of the conformance with the certification scope, including the GHG project and baseline scenarios, additionality; GHG sources, sinks, and reservoirs; and the physical infrastructure, activities, technologies and processes of the GHG project to the requirements of the UCR; e) Evaluation of the calculation of GHG emissions, including the correctness and transparency of formulae and factors used; assumptions related to estimating GHG emission reductions; and uncertainties; and determination whether the project could reasonably be expected to achieve the estimated GHG reduction/removals. f) Review of information flows for generating, aggregating and reporting of the parameters to be monitored g) To confirm that the operational and data collection procedures can be implemented in accordance with the Monitoring Plan h) Cross-check of information provided in the submitted documents and data from other sources available at site i) Review of calculations and assumptions	Tupaciguara in the state of Minas Gerais, Brazil	05/06/2026

	made in determining the GHG data and estimated ERs, and an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters Interviews of local Stakeholders		
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Interviews

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.	Fioreze	Eduardo Hotz	AROEIRA	05/06/2026	Project Implementation, Monitoring plan, Project Boundary, Eligibility criteria, Host country requirements, Emission reduction calculations Project implementation, monitoring, Local stakeholder consultation
2.	Diniz	Jessica Neves			
3.	Caprioli	Mateus De Oliveira			
4.	Vianna	Eduardo	Fastcarbon		
5.	Ribeiro	Fábio Bressani			
6.	DA SILVA	ADEILSON JOSE	Local Stakeholders		
7.	VIEIRA	BRUNO DO CARMO			
8.	TANNUS	CARLA MARTINS			
9.	RIBEIRO	DENIOR ALVES			
10.	SILVA	ELIEL			

Sampling approach

Not Applicable.

Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised

Areas of Project Verification findings	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)			
Identification and Eligibility of project type	-	-	-
General description of project activity	01	-	-
Application and selection of methodologies and standardized baselines	-	-	-
- Application of methodologies and standardized baselines	-	-	-
- Deviation from methodology and/or methodological tool	-	-	-
- Clarification on applicability of methodology, tool and/or standardized baseline	02	-	-
- Project boundary, sources and GHGs	-	-	-
- Baseline scenario	01	-	-
- Estimation of emission reductions or net	02	01	-

anthropogenic removals			
- Monitoring Report	-	-	-
Start date, crediting period and duration	-	-	-
Environmental impacts	-	-	-
Project Owner- Identification and communication	-	-	-
Others (SDG Goals)	01	-	-
Total	07	01	-

Project Verification findings

Identification and eligibility of project type

Means of Project Verification	The project has an installation of 91 MW sugarcane bagasse-based co-generation capacity and hence it qualifies as a large-scale project activity. This is confirmed based on commissioning certificates, ANEEL dispatch authorizations, and technical specifications. Since the project is a large-scale activity, it has applied the approved CDM large-scale methodology ACM0006 – Electricity and heat generation from biomass (Version 16.0), along with the UCR Standard for Emission Factor. The methodology conditions are met, including: • Use of sugarcane bagasse, a renewable residue from sugar and ethanol production. • No dedicated plantations; only bagasse and occasional eucalyptus wood for boiler ignition. • No fossil fuel co-firing beyond the allowed $\leq 25\%$ threshold. • Grid-connected electricity displacement through three UTE units totalling 91 MW. The Project owner has used valid MR form available at the UCR website for the preparation of MR for the current project activity. The project has prepared MR in line with UCR guidance and requirements.
Findings	No findings raised.
Conclusion	The UCR-approved format is used for description and the project meets the requirement of the UCR verification standard and UCR project standard. UCR project communication agreement was submitted to the verifier and the same has been verified. Methodology referenced and applied appropriately describing the project type. The eligibility of the project aggregator is verified using the UCR communication agreement, project correctly applies the verification standard, UCR project standard, and UCR regulations. The project activity is overall meeting the requirements of the UCR Verification standard and UCR project standard.

General description of project activity

Means of Project Verification	The project activity involves the operation of a 91 MW sugarcane bagasse-based co-generation biomass power project. Its commissioning dates and power evacuation to the Brazilian national grid were verified through ANEEL dispatch authorizations and commissioning certificates of the project units. The Power Purchase Agreements (PPAs) confirm the companies/entities involved in the agreement for supply of generated electricity from the 91 MW project located in Tupaciguara, State of Minas Gerais, Brazil. The assessment team conducted documentation review of the PCN against the UCR Program Verification Standard Version 2.0, the UCR CoU Standard (project eligibility criteria) Version 7.0, and the UCR-PCN-FORM Version 1.0. By checking the supporting documents, it is confirmed that the project is a greenfield biomass co-generation project. The project is located in Tupaciguara, Minas Gerais, Brazil. The approximate geo-coordinates of the project site are: • Latitude: –18.7564° • Longitude: –48.6114° • Elevation: ~600 meters • Ground type: Industrial sugarcane mill site with integrated cogeneration facilities The assessment team performed an offsite inspection of the project and confirmed that the location described in the PCN is accurate. The project is a biomass cogeneration power project, utilizing sugarcane bagasse to generate zero-carbon emission electricity, displacing fossil fuel-dominated grid output. The project includes: • Integrated power transmission mechanism • High-pressure boilers and steam turbines (Rankine cycle) • Alternators and auxiliary systems for grid connection • Fuel and ash handling systems • Microprocessor-based fully automatic control system with user-friendly operation and central monitoring system • Quality, Safety, and Health plan for construction, installation, commissioning, and O&M
Findings	CL 04 was raised and closed successfully. More information presented in the appendix below.
Conclusion	The description of the project activity is verified to be true based on the review of the PCN, MR, ANEEL Dispatch Authorizations, Commissioning Certificates, and Power Purchase Agreements.

Application and selection of methodologies and standardized baselines

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

Means of Project Verification	The project has taken reference of CDM methodology ACM0006, Electricity and heat generation from biomass, Version 16.0. The CDM/UNFCCC website was referred to check the latest version of the methodology. For applicability mentioned in the PCN and MR, the technical specifications, ANEEL commissioning certificates, and environmental licenses were reviewed. The project activity involves the operation of a 91 MW sugarcane bagasse-based co-generation biomass power project, with three UTE units (Bioenergética Aroeira, Energética Tupaciguara, and Triângulo Energia) supplying renewable electricity to the Brazilian national grid. The methodology conditions are met, including: • Use of sugarcane bagasse residue from sugar and ethanol production. • No fossil fuel co-firing beyond the allowed $\leq 25\%$ threshold. • Grid-connected renewable electricity displacement. • Compliance with UCR standardized baseline for emission factor calculation.
Findings	No findings raised.
Conclusion	The methodology applied is appropriately meeting the requirements of UCR and its standardized baseline. The methodology version is correct and valid. The referenced methodology is applicable to project activity.

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

Means of Project Verification	The project has taken reference of CDM methodology ACM0006, Electricity and heat generation from biomass, Version 16.0, UCR Program standard, and UCR Verification Standard. The CDM/UNFCCC website was referred to check the latest version of the methodology. For applicability mentioned in the PCN and MR, the technical specifications, ANEEL commissioning certificates, and environmental licenses were reviewed. The project activity involves the operation of a 91 MW sugarcane bagasse-based co-generation biomass power project across three UTE units (Bioenergética Aroeira, Energética Tupaciguara, and Triângulo Energia), supplying renewable electricity to the Brazilian national grid.
Findings	CL 01 and CL 02 were raised and closed successfully. More information presented in the appendix below.
Conclusion	The verification team confirms that all the applicability criteria set by the applied CDM methodology and its eligible tools are met. The relevant information against those criteria is also included in the PCN Version 2.0 and MR Version 2.0. The selected CDM methodology for the project activity is applicable.

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

Means of Project Verification	The project owner has considered the project boundary as per the applicable methodology ACM0006, Electricity and heat generation from biomass, Version 16.0. The spatial extent of the project boundary includes the biomass co-generation power plants and all power plants connected physically to the Brazilian electricity system to which the project plants are connected. Review of the PCN and MR confirms that the project sites and the Brazilian national electricity grid system are considered as the project boundary, which is appropriate.
Findings	No findings raised
Conclusion	The project boundary is correctly defined in the PCN and MR. GHG sources are correctly identified and reported. The project meets the requirements of UCR project standard, Verification standard and methodology requirements for a boundary, GHG sources.

(.a.iv) Baseline scenario

Means of Project Verification	As per the approved consolidated methodology ACM0006, Electricity and heat generation from biomass, Version 16.0, if the project activity is the installation of a new grid-connected renewable biomass co-generation plant/unit, the baseline scenario is the following: <i>"The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid."</i> Remote audit conducted and document review showed that in the absence of the project activity, the generated electricity would have been supplied by the Brazilian grid, which is dominated by fossil fuel-fired thermal plants.
Findings	CL 03 was raised and closed successfully. More information presented in the appendix below.
Conclusion	The approved baseline methodology has been correctly applied to identify a realistic and credible baseline scenario, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed UCR project activity. All assumptions and data used by the project participants are listed in the PCN Version 2.0 and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PCN. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable.

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

Means of Project Verification	The project verification team checked whether the equations and parameters used to calculate GHG emission reductions for the PCN and MR are in accordance with the applied methodology. The verification team reviewed Section B.5 of the PCN and Section C.5.1 of the MR to confirm whether all formulae to calculate baseline emissions, project emissions, and leakage have been applied in line with the underlying methodology. The emission reduction calculation has been carried out as per the CDM methodology ACM0006, Electricity and heat generation from biomass, Version 16.0.
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	As per ACM0006, baseline emissions include only CO₂ emissions from electricity generation in fossil-fuel power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have otherwise been generated by existing grid-connected fossil fuel plants or new fossil fuel generation sources. Baseline emissions are calculated as: $BE_y = EG_{PJ,y} \times EF_{grid,y}$ Where: • BE_y = Baseline emissions in year y (tCO₂) • $EG_{PJ,y}$ = Net electricity generation fed into the grid by the project in year y (MWh) • $EF_{grid,y}$ = Grid emission factor (tCO₂/MWh) A "grid emission factor" refers to a CO₂ emission factor (tCO₂/MWh) which is associated with each unit of electricity supplied by an electricity system. The project has taken reference of the CDM methodology ACM0006, Electricity and heat generation from biomass, Version 16.0, and the UCR Standard for Emission Factor. For Brazil, the combined margin emission factor for the national grid has been applied as per the UNFCCC tool "<i>Tool to calculate the emission factor for an electricity system (Version 7.0)</i>" and Ministry of Science, Technology and Innovation, Brazil (https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/dados-e-ferramentas/fatores-de-emissao). Review of the PCN and MR confirms that the project sites and the Brazilian electricity grid system are considered as the project boundary, and the emission factor applied is consistent with UCR guidance. Project emissions: As per section 5.6 of ACM0006, Electricity and heat generation from biomass, Version 16.0, only emissions associated with fossil fuel combustion, emissions from geothermal plants due to release of non-condensable gases, or emissions from hydro reservoirs should be accounted for as project emissions. Since the project activity is a biomass co-generation plant using sugarcane bagasse and occasional eucalyptus wood for boiler ignition only, there are no fossil fuel emissions. Therefore, project emissions are considered nil. Thus, PE_y = 0. Leakage Emissions: As per section 5.7 of ACM0006, Version 16.0, leakage is to be considered if energy-generating equipment is transferred from another activity. In this project, all generating units (UTE 01, UTE 02, UTE 03) were newly installed and not transferred from other activities. Therefore, leakage emissions are considered zero. Hence, LE_y = 0. Emission reductions:
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As per section 5.4 of ACM0006, Electricity and heat generation from biomass, Version 16.0, emission reduction is estimated as difference between the baseline emission and project emission after factoring into leakage.

$$\text{Thus, } ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂)

BE_y = Baseline Emissions in year y (t CO₂)

PE_y = Project emissions in year y (t CO₂)

LE_y = Leakage emissions in year y (t CO₂)

Since project emissions (PE_y) are nil and leakage emissions (LE_y) are zero, emission reductions equal baseline emissions:

$$\text{Therefore, } ER_y = BE_y$$

The earliest commissioning date of the project is 02/07/2014, when the first biomass co-generation unit (UTE 01 – Bioenergética Aroeira, 6 MW) was commissioned and authorized for commercial operation by ANEEL.

The start date of the crediting period under UCR is considered from 01/09/2014, as per the registered PCN and MR.

For the ease of calculation, the duration of the crediting period in UCR is defined as: 01/09/2014 to 31/12/2025 (11 years and 4 months).

The estimated emission reductions are 46,762 CoUs/yr (46,762 tCO₂eq/yr)

Parameter	Value	Unit
Title	Estimated Emission Reductions (ER Ex-ante) – PCN Bioenergética Aroeira	
Period	Sep 01, 2014 to Dec 31, 2025	
Reference	Section B.5 of PCN v1.0	
Calculation Date	March 04, 2026	
$EF_{grid,CM,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM,y} \times w_{BM}$		
wOM	0.5	
wBM	0.5	
OM (2024)	0.4473	
BM (2024)	0.0523	
Grid Emission Factor ($EF_{grid,CM,y}$)	0.2498	tCO ₂ /MWh
Estimated Annual Generation	208000	MWh/year
Baseline Emissions (BE_y)	51958	tCO ₂ /year
Project Emissions (PE_y)	0	tCO ₂ /year
Leakage Emissions (LE_y)	0	tCO ₂ /year
Gross ER	51958	tCO ₂ /year

	Conservative Adjustment (10%)	0.9	
	Final Estimated ER	46762	tCO₂/year (CoUs/year)
	The actual emission reduction achieved during the first CoU's period (01/09/2014 to 31/12/2025) as per the Project Activity: Actual Total baseline emission reductions (BE_y)= 274,452 CoUs (274,452 tCO₂eq) Net Generation in current monitoring period = 11,11,319 MWh Total emission reductions (Aroeira): <i>ER_y = 274,452 tCO₂ / year (274,452 CoUs /year)</i>		
Findings	CL 05, CL 07 and CAR 01 were raised and closed successfully. More information presented in the appendix below.		
Conclusion	In summary, the calculation of emission reductions was correctly demonstrated by the Project Participants (PP) according to the methodology ACM0006, Electricity and heat generation from biomass, Version 16.0. It is confirmed by the assessment team that: (a) All assumptions made for estimating GHG are listed in the PCN Version 2.0. (b) All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PCN. (c) All values used in the PCN, including GWPs, are considered reasonable in the context of the proposed UCR project activity. (d) The methodologies and, where applicable, the standardized baselines and other methodological regulatory documents have been applied correctly to calculate baseline, project, and leakage GHG emissions, as well as GHG emission reductions. (e) All estimates of the baseline GHG emissions can be replicated using the data and parameter values provided in the PCN and MR.		

(.a.vi) **Monitoring Report**

Means of Project Verification	Parameters determined – Ex-ante The following parameters are determined ex-ante and verified by the verification team: The baseline emission factor ($EF_{grid,y}$) of the project is reported to be determined ex-ante and remains fixed for the crediting period. A "grid emission factor" refers to a CO₂ emission factor (tCO₂/MWh) associated with each unit of electricity supplied by an electricity system. For Brazil, the project applies the combined margin emission factor as per the UNFCCC tool "<i>Tool to calculate the emission factor for an electricity system (Version 7.0)</i>". This factor is used conservatively to calculate emission reductions, ensuring authenticity and compliance with UCR standards. Hence, the same emission factor has been considered to calculate emission reductions under a conservative approach. The parameters applied in the calculation were validated by the verification team. The verification team confirms that all relevant parameters have been sufficiently considered and the values of the parameters are real, measurable, and conservative. Parameters monitored ex-post According to the approved methodology ACM0006, Electricity and heat generation from biomass, Version 16.0, the following parameter is monitored: <table border="1" data-bbox="437 1070 1442 1234"> <thead> <tr> <th>Parameter</th><th>Description</th></tr> </thead> <tbody> <tr> <td>EG_{PJ,y}</td><td>Quantity of net electricity generation supplied by the project plant/unit to the grid in year y</td></tr> </tbody> </table> The values of the parameters monitored were checked against submitted Joint Meter Readings and invoices and were found correct. <u>Meter Details:</u> • Location of meters: UTE 01, UTE 02, UTE 03 substations (Tupaciguara, Minas Gerais) • Type of meters: Main Meter / Backup Meter • Make: L&T and ABB (accuracy class 0.2) • Calibration frequency: Once in 5 years (as per CEA Brazil regulations) • Calibration dates: Verified certificates confirm calibration was conducted periodically as specified, with no delays during the current monitoring period. Management system and quality assurance The monitoring plan presented in the PCN complies with the requirements of the applicable methodology. The verification team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.	Parameter	Description	EG_{PJ,y}	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Parameter	Description				
EG_{PJ,y}	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y				

	The management system and quality assurance procedures have been reviewed by the verification team through document review and interviews with the project participant. The project participant would train all the monitoring staffs are trained against with related requirement; the training guidelines and monitoring manual are saved and verified. The monitoring plan outlines in the PCN includes: - Monitoring Organization - Monitoring apparatus and installation - Calibration - Data collection - Data Management system The submitted calibration certificates were checked and it was confirmed that the calibrations are conducted periodically as specified in the PCN i.e. at least once in 5 years. There was no delay in the calibration during the current monitoring period.
Findings	No findings raised.
Conclusion	The verification team is convinced of compliance of the monitoring plan with the requirements of the monitoring methodology ACM0006, Version 16.0. During the remote audit assessment, the verification team interviewed the PP and confirmed that the monitoring arrangements described in the monitoring plan are feasible within the project design. The monitoring parameter reported in the MR adequately represents the parameters relevant to emission reduction calculation. The calibration report ensures the accuracy of the data reported. The number of CoUs generated is calculated based on this accurately reported data. The calculation was done using an excel sheet where all parameters were reported. The grid emission factor for electricity is considered as per UCR recommendation for Brazilian projects. In the monitoring report, emission reduction calculations are correctly calculated and reported. The monitoring report meets the requirements of UCR project verification requirements.

Start date, crediting period and duration

Means of Project Verification	The start date and crediting period of project activity was checked based on the commissioning certificate, PCN, MR and other documents provided.
Findings	No findings raised.
Conclusion	The project has chosen crediting period start date in UCR as 01/09/2014. The crediting period is chosen as 01/09/2014 to 31/12/2025 and the crediting period for the current monitoring period is 01/09/2014 to 31/12/2025.

Positive Environmental impacts

Means of Project Verification	PP has not claimed any separate positive environmental impact. The project being renewable energy project will reduce fossil fuel use through replacement of the same.
Findings	No findings raised
Conclusion	The project is a renewable energy project and reduces the environmental burden by reducing the dependence on fossil fuel-based

	power plants.
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Project Owner- Identification and communication

Means of Project Verification	PCN, communication agreement, MR, commissioning certificate, power purchase agreement.
Findings	No findings raised.
Conclusion	The project owner was identified through a communication agreement signed between project owner and project aggregator. Commissioning certificates and wheeling agreement were also verified and they clearly establish the project ownership. The identification and communication correctly meet the requirement of project verification and UCR project standard. Project owner: Usina Bioenergética Aroeira S.A.

Positive Social Impact

Means of Project Verification	Project has provided temporary employment to local people during its installation and commissioning. Also post commissioning some of people have employed permanently and local people were engaged leading to social financial benefit to surrounding. Overall social impact of project implementation is positive on the surrounding area
Findings	No findings raised.
Conclusion	Project has overall positive social impact

Sustainable development aspects (if any)

Means of Project Verification	PP has claimed SDG Goals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16 and 17. SDG 1 – No Poverty: Verified through job creation (>1,500 employees), tax contributions, and social programs such as Winter Clothing Drive and Fraternal Comfort Project. SDG 2 – Zero Hunger: Verified through sustainable agricultural practices, vinasse and filter cake reuse, and regenerative farming initiatives. SDG 3 – Good Health and Well-Being: Verified through occupational health programs, medical assistance, and initiatives like the Respiratory Protection Program. SDG 4 – Quality Education: Verified through scholarship programs, technical training, and partnerships with universities (UFU student visits, cultural projects). SDG 5 – Gender Equality: Verified through HR policies prohibiting discrimination, and initiatives like “Women of Sugarcane” promoting female participation in bioenergy. SDG 6 – Clean Water and Sanitation: Verified through water reuse, smart irrigation, and protection of aquatic ecosystems. SDG 7 – Affordable and Clean Energy: Verified during remote audit as the project is a biomass cogeneration plant supplying renewable electricity to the Brazilian grid. SDG 8 – Decent Work and Economic Growth: Verified through employment records, safe workplace programs, and recognition via Master Cana Social Award.
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	SDG 9 – Industry, Innovation, and Infrastructure: Verified through investments in automation, Agrion management system, and innovation projects like BioAroeira Technology Week. SDG 10 – Reduced Inequalities: Verified through living wage policy, workforce benefits, and salary review programs. SDG 11 – Sustainable Cities and Communities: Verified through rural road maintenance, cultural events, and fire brigades protecting communities. SDG 12 – Responsible Consumption and Production: Verified through composting yard, recycling of filter cake and ash, and sustainable resource use. SDG 13 – Climate Action: Verified through emission reduction calculations (274,452 tCO₂eq), ethanol production, and energy efficiency investments. SDG 15 – Life on Land: Verified through recovery of Permanent Preservation Areas, ecological corridors, and fauna monitoring programs. SDG 16 – Peace, Justice, and Strong Institutions: Verified through Code of Ethics, whistleblowing channel, and ESG governance structures. SDG 17 – Partnerships for the Goals: Verified through partnerships with universities, research centers, and suppliers for innovation in ethanol, sugar, and cogeneration.
Findings	CL 06 was raised and closed successfully. More information presented in the appendix below.
Conclusion	The project has the capability to address SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16 and 17.

Internal quality control

The verifier confirms that,

- Due professional care has been taken while reviewing the submitted document.
- There is no conflict of interest as the verifier has no other engagement with either the aggregator or project owner directly or indirectly.
- Verification team consists of experienced personnel.

Project Verification opinion

Assessment team conducted documentation review the PCN against the UCR program verification standard version 2.0 and UCR project eligibility criteria version 7.0 and the UCR-PCN-FORM Version 1.0.

It is confirmed that the project activity is a 91 MW Sugarcane Bagasse based co-generation Energy Bioenergética AROEIRA project located at Tupaciguara in the state of Minas Gerais, Brazil.

The geo co-ordinates of the project activity have been mentioned in sections above. Assessment team performed a remote audit and confirmed that the location described in the PCN is accurate. The verification was performed on the basis of UCR requirements, and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification consisted of the following three phases: i) desk review of the PCN, MR and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The project correctly applies the approved baseline and monitoring methodology ACM0006: Electricity and heat generation from biomass (Ver.16).

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design, and the project participants are able to implement the monitoring plan. Given that the project is implemented and maintained as designed, the project has achieved the emission reductions of 274,452 tCO₂eq during the monitoring period i.e. from 01/09/2014 to 31/12/2025.

The review of the project design documentation and the subsequent follow-up interviews have provided assessment team with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all applicable UCR requirements. Assessment team thus requests the registration of the proposed UCR project activity.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology for large-Scale CDM project activities
UCR	Universal Carbon Registry
PCN	Project Concept Note
MR	Monitoring Report
t	Tonnes
NGO	Non-Governmental Organization
ISO	International Organization for Standardization
CAR	Corrective Action Request
CL	Clarification Request
GHG	Greenhouse Gas
MWh	Megawatt Hours
CO ₂	Carbon Dioxide
CH ₄	Methane
N ₂ O	Nitrous Oxide

Appendix 2. Competence of team members and technical reviewers

❖ **Mr. Pankaj Kumar** is a seasoned Environment and Climate Change professional with over 19 years of experience in Climate Change Mitigation & Adaptation, Environmental Due Diligence, Disaster Risk Reduction, Climate Finance, and capacity building. As the Managing Director of Enviance Services Pvt. Ltd., Pankaj Kumar leads a validation and verification body for GHG projects and also providing consultancy services in various areas including Climate Adaptation, Mitigation, Sustainability, and more. Previously, Pankaj Kumar served as a Climate Adaptation Expert with Deloitte Touche Tohmatsu India LLP, contributing to the World Bank project on Asset Management, Institutional Effectiveness, and Road Safety in Bihar. Mr. Pankaj also led the Bihar team for the South Asia Climate Proofing and Growth Development (CPGD) – Climate Change Innovation Programme (CCIP), supported by DFID, which aimed to integrate climate change resilience into planning and budgeting across South Asia. With a strong background in environmental projects, Pankaj Kumar has worked with IL&FS Infrastructure Development Corporation and BUIDCO (Bihar Urban Infrastructure Development Corporation) as an Environmental Specialist for WB & ADB funded projects. Additionally, Pankaj has extensive experience in GHG project validation and verification, having led over 300 projects globally while with UNFCCC accredited DoEs and as an external expert for Gold Standard and Global Carbon Council. Mr. Pankaj is an accredited Lead Auditor, Validator, Verifier, and Technical Expert for multiple sectoral scopes by UNFCCC DoE and is on the roster of WASH experts of UNICEF. Mr. Pankaj's expertise spans across various standards including CDM, Verified Carbon Standard, Gold Standard, Global Carbon Council, Natural Forest Standard, Riverse and Social Carbon Standard.

❖ **Ms. Ritu Singh** has done Masters in Environmental Science from Central University of South Bihar, Gaya and bachelor of Science in Zoology from Magadh Mahila College, Patna University, India. She has done Masters' research focused on solid waste management during and post covid-19 pandemic and conducted a survey in Medical Colleges of Bihar to study the trends of waste management. She has more than 2 year working experience in True Quality Certifications Pvt. Ltd. (An outsource entity for LGAI Technological Center, S.A. (Spain) "Applus+ Certification") and has been involved in supporting Audit teams for Validation and Verifications of Project Activities (Renewable and non-Renewable projects) under CDM/VCS/GS4GG/GCC programs. Currently, Ritu is engaged as an internal resource with Enviance Services Private Limited, where she is accredited as a Lead Auditor, Validator, Verifier, and Technical Expert for Sectoral Scope/Technical Area 1.2 by Enviance.

❖ **Ms. Swati Mahajan** is graduate in Environmental Engineering from Shivaji University, India and previously worked as an Environment Engineer at Eco Designs India Private Ltd., Pune. She is adept in designing of landfill sites for solid waste management. She also has hands on experience in cost benefit analysis and preparation of DPRs for SWM projects. She also has done a certified course in carbon capture and storage from Edinburg University. Currently working as GHG assessor for projects under various GHG mechanisms like GCC, ICR, UCR and VERRA.

Appendix 3. Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1	NA	Communication agreement		Project Owner
2	NA	Project Concept Note		Aggregator
3	NA	Monitoring report		Aggregator
4	NA	Emission reduction sheet		Aggregator
5	NA	Declaration on avoidance of double counting		Aggregator
6	NA	Commissioning Certificates for the solar power plants		Aggregator
7	NA	Power Purchase Agreement		Aggregator
8	NA	Joint Meter Readings/invoices for the complete monitoring period		Aggregator
9	NA	Calibration certificates for energy meters		Aggregator
10	NA	Equipment purchase order		Aggregator
11	NA	Grid Emission factor recommended for Brazilian projects by Ministry of Science, Technology & Innovation, Brazil	https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/dados-e-ferramentas/fatores-de-emissao	General project eligibility criteria and guidance UCR standard version 7.0
12	UCR	UCR Program manual version 6.2 UCR COU standard version 7 UCR Verification standard version 2 UCR terms and conditions version 11.0, May 2025	https://www.ucarbonregistry.io/Document?projectId=1	Universal Carbon Registry
13	CDM	CDM approved methodology ACM0006: Electricity and heat generation from biomass (Ver.16)	https://cdm.unfccc.int/methologies/DB/21E2L3F73E90999CBVWXZ8WL40J819	UNFCCC

Clarification request, corrective action request and forward action request

Table 1. CLs from this Project Verification

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	01
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
- The project owner has provided ANEEL dispatches evidencing both test operation and commercial operation dates for the generating units. During the assessment, it was observed that the 10 MW unit of UTE 01 commenced test operation on 11/11/2010 (subject to confirmation), whereas the commercial operation date is 04/07/2014, resulting in a substantially longer interval compared to the other units, for which the gap between test operation and commercial operation is relatively short. The project owner is requested to clarify the reason for the extended period between test operation and commercial operation of the 10 MW unit and provide supporting documentation demonstrating the operational status of the unit during this period. Additionally, the project owner shall confirm whether there are any ANEEL requirements, approvals, or conditions that governed this transition from test operation to commercial operation. - PO shall provide test operation document for 40 MW. - PO shall provide clarification on capacity of UTE 1 as in the authorization Resolution the capacity is mentioned as 5MW and in the Monitoring report and in other documents the capacity mentioned as 6 MW. - PO shall provide authorization resolution from ANEEL for 35 MW.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026
- Initially, the plant was authorized to operate as an independent power producer and operated exclusively (from 2010 to 2014) for internal consumption, without exporting energy. It was only in 2014 that they requested authorization to connect to the grid and export energy. To transition from test operation to commercial operation: - Tests for grid synchronization, validation of protective devices and control systems, progressive load tests, technical inspection by ANEEL/ONS (National Electric System Operator). Documents 2546520 – history.pdf / CET1-dsp20133323 - Change from 15 to 16 MW.pdf / dsp20121550ti - Modification of the transmission and connection system on the utility's grid were forwarded. - Dispatch 1269 - 2024 - ANEEL BR - UTE 3 - 40 MW - Test Operation. Document Dispatch 1269-2024 forwarded. - The plant was initially authorized to operate as an independent power producer with two generators (10 MW and 5 MW). However, only the 10 MW generator was installed in the initial phase and operated exclusively for internal consumption without energy export. In 2014, a second 6 MW generator was installed, requiring a new authorization to replace the original 5 MW authorization (which never operated). Commercial energy export began only in 2014. From 2010 to 2013, the plant operated with a single 10 MW generator for internal use only. - Ministerial Ordinance of the Ministry of Mines and Energy 235 2018 da ANEEL BR - Authorization as Self-Producer 35MW. Document Ministerial MME nº 235/2018 forwarded. The filename has been corrected: Authorizing Resolution -2490-2010-Aneel-BR-consolidated-Authorization as Self-Producer 15MW (UTE 01). This CL is closed.			
Validation/Verification Team Assessment		Date:	02/07/2026
Explanation for the extended test-to-commercial-operation gap on the 10 MW unit (internal-consumption-only operation 2010–2014) is plausible and consistent with the narrative in the			

revised MR and with Authorizing Resolution 2490/2010 (30-year authorization from 2010). PO has now submitted the documents 2546520 – history.pdf / CET1-dsp20133323 - Change from 15 to 16 MW.pdf / dsp20121550ti - Modification of the transmission and connection system on the utility's grid were also forwarded. On assessment all the documents were found to be relevant. 2. Dispatch 1269 – 2024 – ANEEL BR – UTE 3 – 40 MW – Test Operation has now been submitted, satisfying the requirement for the 40 MW unit. 3. Capacity discrepancy (5 MW vs 6 MW) is adequately clarified: the originally authorized 5 MW unit was never built and was replaced by a 6 MW unit installed in 2014, and the MR now consistently reports 6 MW. CL is closed Closed. 4. Ministerial Ordinance MME 235/2018 has been submitted, confirming 35 MW authorization for UTE 2.

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	02
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
1. PO has provided an Operating/Environmental License for UTE 01 and UTE 02 indicating a total installed capacity of 51 MW (35 MW + 10 MW + 6 MW). However, the 6 MW and 10 MW units of UTE 01 commenced commercial operation on 02/07/2014 and 04/07/2014, respectively. PO shall clarify whether the provided license is a new license, renewal, amendment, or consolidation of previously issued licenses. Furthermore, PO shall provide the operating/environmental licenses, permits, or other relevant approvals applicable to the 6 MW and 10 MW units at the time of commencement of commercial operation in 2014. 2. PO shall provide supporting evidence to cross verify the information of the company foundation, ground breaking ceremony (construction start date), industrial operation starts and corporate transformation to Bioenergética Aroeira S.A.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026
1. The following are the sequences of environmental/operational licenses and their respective renewals: - LO N°134 – Environmental License dated September 9, 2011, valid until September 9, 2017; - AAF 06461/2017 Environmental License dated September 6, 2017, valid until September 6, 2021; - LAS N° 1002– Environmental License dated March 18, 2020, valid until March 18, 2030; - LAS N° 1034– Environmental License dated March 16, 2021, valid until March 16, 2031; 2. Added photos of the cornerstone and a link to the webpage showing the company's history. https://www.bioaroeira.com.br/quem-somos/			
Validation/Verification Team Assessment		Date:	02/07/2026
1. The sequence of environmental/operating licenses (LO N°134 – 2011; AAF 06461/2017; LAS 1002 – 2020; LAS 1034 – 2021) was provided and reasonably demonstrates continuous licensing coverage, including LO N°134 (issued 2011, valid to 2017) which predates and covers the 2014 commencement of commercial operation of the 6 MW/10 MW units. 2. CNPJ registration document confirms company incorporation on 10/10/2006, consistent with the MR narrative. The photographic evidence of the cornerstone/ground-breaking ceremony referenced in the PO response were verified in the link mentioned and found to be relatable with the project activity. This CL is closed			

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	03
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description	Date: 11/06/2026		

1. PO shall provide justification on what basis the baseline scenario has been established for the project activity. PO shall add the details in both PCN and MR. 2. PO shall provide clarification on why the project emission has been taken as zero. During remote audit the Project Owner (PO) admitted that logs were co-fired with bagasse, project emissions (PEFF,y) must be calculated and deducted from ERs as per the applied methodology (ACM0006 v16 and TOOL03). PO required to address following steps in calculation: • Apply Methodology Equation Project emissions must be calculated using ACM0006 v16 and TOOL03. PEFF,y = \u2211 (FCi,y \u00d7 NCVi \u00d7 EFCO2,i) FCi,y = Quantity of fossil fuel i consumed (logs) NCVi = Net calorific value of fuel i EFCO2,i = CO2 emission factor for fuel i Ensure units are consistent (tCO2eq) • Include in Monitoring Report The Monitoring Report must show deduction of PEFF,y from ERs. Update ER calculation sheet with PEFF,y term Revise MR tables to show baseline emissions minus project emissions Attach supporting calculation sheets and references 3. PO shall remove leakage emission and project emission calculation from section C.4 and include the calculation in section C.5. Calculation should include correct equations in line with the applied methodology.		
Client/Responsible Party/Project Proponent Response	Date:	24/06/2026
1. The ACM0006 methodology was selected because the Aroeira project generates electricity from sugarcane bagasse (biomass), which displaces fossil fuel-based thermal power plants on the Brazilian electricity grid. Baseline Rationale: In the absence of renewable energy generation from biomass, the Brazilian electrical grid would need to increase reliance on fossil fuel-fired thermal power plants to meet electricity demand. The ACM0006 methodology is specifically designed to quantify this displacement effect by establishing the baseline scenario as the marginal generation from fossil fuel sources. Why ACM0006: • It is the UNFCCC-approved methodology for electricity and heat generation from biomass • It directly addresses the project's scope: biomass-to-electricity conversion displacing fossil fuels • It allows calculation of the grid's marginal emission factor (EFgrid), which represents the carbon intensity of the fossil fuel-based generation that would otherwise occur • It is aligned with the UCR Standard for Emission Factors and Brazilian renewable energy regulations The methodology choice reflects the project's core contribution: by generating clean electricity from bagasse, Usina Bioenergética Aroeira S.A. reduces the need for fossil fuel thermal generation on the grid, thereby avoiding significant CO2 emissions. Information has been added to the PCN, correcting the inconsistency. 2. No fossil fuel is used together with sugarcane bagasse for energy generation. The wood used to ignite the boilers at the beginning of the harvest season is classified as renewable biomass, not as fossil fuel. Therefore, it does not affect the project's classification as an electricity generator from biomass (sugarcane bagasse) without fossil fuel co-firing. The wood is also a renewable biomass. Diesel is not used at any stage of energy generation. The logs (eucalyptus wood) used for boiler ignition are renewable biomass, not fossil fuel. Therefore, under ACM0006 v16 §5.6: - This is classified as PE(Biomass,y). NOT PE(FF,y).		

- CO₂ from biomass combustion is biogenic and excluded per ACM0006. - CH₄ and N₂O are negligible for high-efficiency industrial boilers. The reasoning behind considering PE as equal to zero was based on the MR and PCN component by component. 3. Leakage and project emission calculations have been removed from Section C.4 and placed in Section C.5, where they belong per the methodology structure. Transferred to section C5 and the equation added. The reason for considering Leakage to be equal to zero was also better substantiated.			
Validation/Verification Team Assessment		Date:	02/07/2026
1. Baseline scenario justification has been incorporated into both the MR (Section C.5) and the PCN. 2. The project participant has clarified that no fossil fuel is used in conjunction with sugarcane bagasse for energy generation. The eucalyptus wood logs used for boiler ignition at the start of the harvest season are renewable biomass, not fossil fuel. Diesel is not used at any stage of energy generation. In accordance with ACM0006 v16 §5.6, this ignition source is classified as PE(Biomass,y), not PE(FF,y). CO₂ emissions from biomass combustion are biogenic and excluded, while CH₄ and N₂O emissions from high-efficiency industrial boilers are negligible. Therefore, project emissions (PE_y) are equal to zero. However, as per ACM0006 requirements, PE_y must be explicitly reported in the ER equation ($ER_y = BE_y - PE_y - LE_y$) with justification, rather than omitted. The MR and PCN provide sufficient evidence to support reporting PE_y = 0. 3. Leakage and project-emission calculations have been relocated from Section C.4 to Section C.5 as instructed, with equations included. This CL is closed.			
Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	04
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
PO shall submit: • Verified supporting document for bagasse consumption. • Supporting documents for air quality emissions. • Detailed methodology for ash disposal post-bagasse burning. All above details must be incorporated into the Monitoring Report (MR) and Project Concept Note (PCN). • Energy sales records evidencing supply to grid/consumers.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026
The industrial report with bagasse consumption data has been sent. Air quality analysis documents have been sent. The powder resulting from burning the bagasse is reused as fertilizer in the sugarcane plantation itself. The weighing of the powder is recorded in management reports, which have been forwarded. The sales invoices for the energy have been sent. The energy sales invoices for the three thermoelectric power plants were forwarded.			
Validation/Verification Team Assessment		Date:	02/07/2026
Verified supporting documents for bagasse consumption (Safrá 2023, 2024 and 2025 reports) – provided. Air quality supporting documents (4 “Relatório de Fonte Estacionária” reports, covering 2023–2024) – provided. Ash disposal methodology – supported by management reports (Safrá 2023/2024/2025) and composting-yard photographs showing reuse of ash as fertilizer. Energy sales records evidencing supply to the grid/consumers – UPDATED: 873 sales invoices (DANFE/NF-e) were subsequently submitted, covering Usina Bioenergética Aroeira (UTE 01, 2014–2020			

and 2024), Central Energética Tupaciguara/CET (UTE 02, 2020–2024) and Triângulo Energia (UTE 03, 2024 only). This satisfies the finding.
 PO has submitted the 2025 invoices for all the three plants. Separately, the absence of Aroeira (UTE 01) invoices for 2021–2023 is consistent with the near-zero generation recorded for that unit in those years per the CCEE Measurements workbook, and is not considered a gap.
 This CL is closed.

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	05
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
1. In the submitted Excel sheet, certain months show net generation values recorded as zero. No explanation has been provided for these periods of non-generation. PO shall submit a formal clarification detailing the reasons for zero-generation during the specified months. The explanation must cover: • Operational Factors: Scheduled/unscheduled maintenance, grid outages, equipment failure, commissioning delays. • Regulatory/Commercial Constraints: Curtailment instructions, lack of PPAs, tariff issues. • Environmental/External Conditions: Weather disruptions, force majeure events, site access limitations. 2. The submitted energy generation records are presented as a consolidated dataset covering the period 2014–2025. Monthly disaggregated records have not been provided, limiting traceability and verification of generation data. PO shall submit monthly energy generation records for the entire crediting period. Records must be clearly segregated by month and year, ensuring transparency and audit-ready traceability. 3. PO shall clarify whether there was any delay in calibration of meters.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026
1. Energy generation from sugarcane bagasse occurs during the harvest season and while there is bagasse available for burning. During the off-season and when the bagasse runs out, there is no energy generation. 2. The spreadsheets containing the exported energy are extracted directly from the CCEE application and are in the format shown. The spreadsheet "CCEE Measurements.xls" and the "CCEE Measurements" tab contain the energy month by month, year by year (Active Generation kWh) and by metering point. By filtering by metering point, it is possible to segregate the exported energy from each power plant. 3. The meters need to be calibrated every 5 years. The meters for UTE 1 and 2 were last calibrated in February 2026. However, the meters for UTE 3, which is a newer UTE, were calibrated in June 2023 and began exporting in 2024, therefore still within the 5-year validity period and there was no need for new calibration.			
Validation/Verification Team Assessment		Date:	02/07/2026
1. Zero-generation clarification (harvest-season dependency of bagasse-fired generation) is addressed in the PO's narrative response. 2. Monthly, year-by-year disaggregated generation records (2014–2025, by metering point/unit) are confirmed present in the CCEE Measurements and Calculations workbooks. Closed. 3. Meter calibration dates are now documented in the MR monitoring plan (Section C.10): UTE 01/02 meters last calibrated February 2026, UTE 03 meters calibrated June 2023 (within the 5-year ANEEL/ONS validity window). Calibration certificates were verified and found that all there was no delay in meter calibration.			

This CL is closed.

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	06
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
1. In the PCN & MR, PO has claimed all SDGs, whereas only project-related SDGs are applicable. PO shall claim only relevant SDGs (SDG 7 – Affordable & Clean Energy, SDG 8 – Decent Work & Economic Growth, SDG 13 – Climate Action). If all mentioned SDGs are applicable then PO shall explain how are they relevant to project activity. PO shall also submit details of locally employed people to substantiate SDG 8. PO shall • Revise PCN to reflect only relevant SDGs. • Provide employment records of locally hired staff. • Update MR/PCN accordingly. 2. PO shall submit names of local stakeholders.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026
1. 16 SDG's were requested. All evidence has been submitted. All of these practices are implemented and applied within the company, as evidenced by the submitted documents. 2. Below: - Tupaciguara Municipal Government (Prefeitura Municipal de Tupaciguara) - SEMAD/MG — State Environmental Agency of Minas Gerais - UFU — Federal University of Uberlândia - Partner colleges and technical schools - Hilda Vilela Elderly Shelter (Asilo Hilda Vilela) - Rotary Club (local chapter) - Local community residents (Tupaciguara and surrounding region) - Bioenergética Aroeira employees (1,000+ workers) - Children and adolescents participating in social projects (Futsal, Ballet, Urban Dance)			
Validation/Verification Team Assessment		Date:	02/07/2026
1. All 16 claimed SDGs are retained, PCN now includes a target-by-target justification table explaining the relevance of each. Employment records submitted by PO supports the SDG 8 claim. 2. A list of local stakeholders was provided by the PO. This CL is closed.			

Classification	☐ CAR ☒ CL/CR ☐ FAR	Number:	07
Raised by:	Ms. Swati Mahajan	Document Reference	MR
Finding Description		Date:	11/06/2026
For UTE 03 – Triângulo Energia, UG-5 (40 MW), operational since June 11, 2024, emission reduction sheet shows readings starting April 2024. PO shall clarify the reason for entries prior to the operational start date and provide supporting evidence (commissioning/test run records or correction of data). • Submit clarification for April–May 2024 entries. • Provide supporting documentation. • Correct ER excel sheet and update MR/PCN accordingly.			
Client/Responsible Party/Project Proponent Response		Date:	24/06/2026

The months of April and May were excluded from the calculations, as this was the energy exported during the testing period and should not have been considered.

Validation/Verification Team Assessment	Date:	02/07/2026
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The CCEE Measurements data for UTE 03 shows metered generation beginning in June 2024, consistent with the PO's explanation that the April–May 2024 figures corresponded to the test-operation period and were correctly excluded from the emission-reduction calculation.

This CL is closed.

Table 2. CARs from this Project Verification

Classification	☒ CAR FAR	☐ CL/CR	☐	Number:	01
Raised by:	Ms. Swati Mahajan			Document Reference	MR
Finding Description				Date:	11/06/2026
1. Completion date of PCN is inconsistent throughout the PCN. Correction sought. 2. In the PCN, PO has reported actual emission reduction amounts instead of estimated values. PO shall mention estimated emission reduction amounts in the PCN and submit a corresponding estimated emission reduction Excel sheet. PO shall also Revise PCN to reflect estimated values. Prepare and submit estimated emission reduction Excel sheet. Ensure MR/PCN consistency with methodology requirements.					
Client/Responsible Party/Project Proponent Response				Date:	24/06/2026
1. The information has been corrected in the report. 2. Done. The ER estimation spreadsheet has been forwarded.					
Validation/Verification Team Assessment				Date:	02/07/2026
1. The inconsistency in the completion date of the PCN has been corrected. The reviewed version now consistently states 24 June 2026. CAR closed. 2. The PCN narrative has been revised to reference estimated ex-ante emission reductions and cites the Tool07 combined-margin methodology. However, the supporting Excel workbook reviewed (“Calculations – Aroeira – MR MWh 2014–2025”) contains actual monitored generation data rather than a distinct PCN-stage estimated ER sheet. The file Estimated Emission Reductions (ER Ex-ante).xlsx has now been provided. It contains estimated ER values consistent with PCN Section B.5. This satisfies the requirement. This CAR is closed.					

Table 3. FARs from this Project Verification

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			

Project Verification Report

Project Owner's response	Date: DD/MM/YYYY
Documentation provided by Project Owner	
UCR Project Verifier assessment	Date: DD/MM/YYYY