

Preliminary Assessment Public Summary

This *Preliminary Assessment Public Summary*, prepared by Puro.earth, contains general information about the CO₂ Removal Supplier and its project, as evaluated at the time of the Preliminary Assessment (PA). It also includes a *Non-Technical Project Summary* and a *Criteria Assessment Report* detailing: i) key criteria assessed and their associated outcomes, ii) Puro's comments, and iii) evidence provided by the CO₂ Removal Supplier.

The *PA Public Summary* serves as a transparent communication tool, enabling potential investors, buyers, and stakeholders to quickly understand the supplier's carbon removal capabilities and assessment status.

The supplier has also received an extended *Preliminary Assessment Report*. This confidential document offers in-depth insights, including specific remarks and actionable recommendations to guide the supplier's progression through the certification journey.

1. Supplier and Project Information

CO ₂ Removal Supplier	
Company name	Applied Carbon Inc.
Company address	9110 Taub Rd Houston 77064 United States
Business ID	851294056
KYC status	Completed (24/10/2023)
CO ₂ Removal Project	
Methodology	Biochar, Edition 2022, Version 3
Production Facility name	Terra
Facility registration date	04/12/2024
Production Facility ID	686528
Production Facility location	9110 Taub Rd Houston 77064 United States
Host Country of removal	United States
Has this facility been registered in another registry?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, additional information:
Preliminary Assessment Details	
Date of assessment	18/02/2025
Status of assessment	Completed
Conclusion of assessment	Passed

2. Non-Technical Project Summary

Applied Carbon develops advanced pyrolysis systems and provides CO₂ removal services, specializing in converting agricultural waste into high-quality biochar. We process various feedstocks including corn stover, milo stover, and pecan nut shells through our innovative pyrolysis systems. Our technology operates autonomously in two configurations: self-contained mobile units that work directly in fields, and transportable edge-of-field systems. The biochar we produce is distributed to agricultural fields to enhance soil health and crop yields, with verified carbon dioxide removal and comprehensive tracking.

The definition of CO₂ Removal Supplier and Production Facility can be found in the Puro Standard.

3. Criteria Assessment Report

Reminder: Sub-criteria either concern the Production Facility's technical eligibility or its maturity and quality. There are three types of sub-criteria:

- **Required to be passed:** These correspond to the core criteria related to the eligibility of a Production Facility. Suppliers must meet these criteria, as they may otherwise be impossible or costly to change at a later stage of the certification journey.
- **Required to be assessed:** These criteria are important for evaluation but do not necessarily determine pass or fail at this stage, as it is understood that the suppliers may be at different stages of development.
- **Not required:** These criteria are optional at this stage. They may provide additional information about the project maturity but are not essential for passing the preliminary assessment.

For a facility to be considered eligible for listing, all the sub-criteria that condition eligibility must be met (i.e. passed or assessed). If one of those sub-criteria is not met, the facility in its current state of development is not eligible for listing.

Disclaimer: The assessment has been made against the criteria in the current version of the methodology. Puro.earth relied on the CO₂ Removal Supplier for the correctness of the provided information during the time of the preliminary assessment and will make no representation as to the accuracy or completeness of this report. The CO₂ Removal Supplier must undergo a third-party audit before issuing CO₂ Removal Credits (CORCs). **Passing the preliminary assessment does not guarantee a success in the third-party audit.**

Overall evaluation: Preliminary Assessment is **passed**.

Table 1. Criteria and sub-criteria assessment by Puro based on the documents submitted.

ID	Criteria / Sub-criteria	Outcome	Comment	Evidence reviewed	Requirement for listing	Purpose of criteria
c1	Planned biomass feedstock(s) is(are) eligible	Passed			Passed if required sub-criteria are met	
c1.1	Biomass feedstocks are identified and compatible with EBC positive list	Passed	The identified <i>current</i> and <i>intended</i> biomass feedstocks include pecan shells (N-02: food processing residues), as well as corn stover (i.e., stalks, leaves and cobs) (Ag-05: harvest residues from agriculture). These biomass types are compatible with the EBC/WBC Positive List of Feedstock.	C1.1 - Biomass types and origins list Terra-22JAN2025.xlsx; Corn stover Material Supplier Attestation.pdf; Farmer - in-fieldend user and NRCS contract.pdf; PecanShell.com Feedstock Contract.pdf	Required to be passed	Technical eligibility

c1.2	<i>Biomass feedstock sustainability and chain-of-custody can be demonstrated, if applicable</i>	Passed	Applied Carbon, Inc. has identified feedstock sources in Texas, though traceability of <i>intended</i> feedstocks needs to be verified during the audit.	C1.1 - Biomass types and origins list Terra-22JAN2025.xlsx; Corn stover Material Supplier Attestation.pdf; Farmer in-fieldend user and NRCS contract.pdf; PecanShell.com Feedstock Contract.pdf	Required to be passed	Technical eligibility
c1.3	<i>Bioenergy leakage related to feedstock use is minimal</i>	Assessed	Some alternative uses of the <i>intended</i> biomass could entail energy production (i.e., combustion with energy recovery). However, most alternative uses of the <i>current</i> and <i>intended</i> feedstocks involve in-field combustion or decomposition, or sale for non-bioenergy purposes (e.g., mulch). Hence, bioenergy leakage is deemed minimal.	C1.1 - Biomass types and origins list Terra-22JAN2025.xlsx; Puro Additionality v1.9 - Terra-20JAN2025.docx	Required to be assessed	Technical eligibility
c1.4	<i>Land use change related to feedstock use is minimal</i>	Assessed	The selected feedstocks and their sourcing approach are deemed to have minimal to no effects on land use change.	C1.1 - Biomass types and origins list Terra-22JAN2025.xlsx; Corn stover Material Supplier Attestation .pdf; Farmer - in-fieldend user and NRCS contract.pdf; PecanShell.com Feedstock Contract.pdf	Required to be assessed	Technical eligibility
c1.5	<i>Sourcing of biomass is secured (e.g. letters of intent, contracts)</i>	Assessed	Sourcing corn stover, as well as pecan shells, has been secured through contracts and a letter of commitment.	Corn stover Material Supplier Attestation.pdf; Farmer - in-fieldend user and NRCS contract.pdf; PecanShell.com Feedstock Contract.pdf	Not required	Maturity & Quality
c2	Planned biochar production equipment is technically sound	Passed			<i>Passed if required sub-criteria are met</i>	
c2.1	<i>Several options of reactor design have been identified</i>	Passed	A mobile pyrolysis unit developed by the supplier, the M5, has been selected.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx; C2.1 - Pyrolysis Process Flow and Description for In Field Oct2024.pdf	Required to be passed	Technical eligibility
c2.2	<i>Reactor design has been decided, contracted, or purchased</i>	Assessed	Four mobile pyrolysis units have been manufactured by Applied Carbon, Inc. and are operational since July 2024.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx; C2.1 - Pyrolysis Process Flow and Description for In Field Oct2024.pdf	Required to be assessed	Maturity & Quality
c2.3	<i>Reactor design is vetted, regarding production of biochar with H/C ratio below 0.7</i>	Passed	Pyrolysis temperatures are expected to be between 750-900°C, with residence times and heating rates that will vary depending on the feedstock properties. Laboratory analyses have demonstrated that the selected equipment and feedstocks can produce biochar with an H/C _{org} below 0.7.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx; C2.1 - Pyrolysis Process Flow and Description for In Field Oct2024.pdf; C2.3a - 24F01328 R1.pdf; C2.3b - 24F01392 R1.pdf; C2.3c - 24F01428 R1.pdf; Biochar Quality Assurance PURO.v.1.12.25.pdf	Required to be passed	Technical eligibility

c2.4	Reactor design is vetted, regarding risk for CH ₄ emissions	Passed	If operated according to its specification, the M5 pyrolysis units are expected to produce minimal CH ₄ emissions, as demonstrated by emissions tests conducted on a stationary configuration of a reactor processing corn stover. It remains to be demonstrated that stable production operations can be achieved also when the M5 unit is in mobile configuration.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx; C2.1 - Pyrolysis Process Flow and Description for In Field Oct2024.pdf; Equipment Questionnaire - oxidizer burner RE4700BA.pdf; C2.4a - November 20-21 Emission Calculations (Module 3).pdf; Environmental Evaluation Report signed - Terra-13JAN2025.docx	Required to be passed	Technical eligibility
c2.5	Reactor design is vetted, regarding air pollutant emissions in line with local regulation	Passed	The reactor has a thermal oxidizer to destroy harmful gases, volatile organic compounds, and other pollutants produced during the process. It also has a cyclone to separate particulate matter. Applied Carbon, Inc. is aware of the applicable local regulations. Although not required in the current jurisdiction of operations, testing for NO, NO ₂ , CO, Total VOC, PM and CH ₄ has been conducted. If operated according to its specification, the M5 pyrolysis unit is expected to produce minimum air pollutants.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx; C2.5b - All4 DRAFT - Multi-State Permitting Strategy Dec 2024.pdf; C2.5a - All4 for Houston TX - Applied Carbon, Inc. Permit Strategy Memorandum.pdf; C2.4a - November 20-21 Emission Calculations (Module 3).pdf; Environmental Evaluation Report signed - Terra-13JAN2025.docx	Required to be passed	Technical eligibility
c2.6	Facility design is vetted, regarding disposal of waste streams, including any liquid streams (wastewater, oil, tars)	Passed	The M5 units are expected to combust all pyrolysis syngas in the thermal oxidizer, preventing pyrolysis oil and tar formation. M5 Units do not produce wastewater, and are expected to generate only trace amounts of ash. Hence, they are deemed to generate minimal waste.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx ; Mass and energy balance of production process Terra-14JAN2025.xlsx; Environmental Evaluation Report signed - Terra-13JAN2025.docx	Required to be passed	Technical eligibility
c2.7	Facility is co-producing bioenergy (e.g. heat, power) for internal use	Assessed	Pyrolysis syngas is combusted with internal energy recovery to support the pyrolysis reaction and biomass drying during operation.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx	Required to be assessed	Maturity & Quality
c2.8	Facility is co-producing bioenergy (e.g. heat, power, fuel) for external use	Assessed	The supplier is not planning to recover energy for external use.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx	Required to be assessed	Maturity & Quality
c3	Biochar planned end-use(s) is(are) eligible	Passed			<i>Passed if required sub-criteria are met</i>	
c3.1	Biochar end-uses are eligible	Passed	Biochar will be applied as a soil amendment on US agricultural lands.	Applied_Carbon-end user one pager marketing Terra-22JAN2025.pdf; Biochar Marketing at Applied Carbon 22JAN2025.docx	Required to be passed	Technical eligibility

c3.2	<i>Plans of biochar end-uses are tangible</i>	Assessed	With mobile M5 units, biochar will be directly applied to soil during biomass collection and conversion. For stationary units, biochar will be transported to the target fields. A letter of commitment between Applied Carbon, Inc. and a farmer demonstrates initial end-use arrangements. For the audit, more end-use tracking evidence will be needed, both for stationary and mobile configurations.	Farmer - in-fieldend user and NRCS contract.pdf	Required to be assessed	Maturity & Quality
c3.3	<i>Biochar environmental quality thresholds are known for the identified end-uses</i>	Assessed	Applied Carbon, Inc. is aware of environmental quality requirements, but has not yet identified the specific thresholds that will apply to their operations.	Biochar Quality Assurance PURO.v.1.12.25.pdf	Required to be assessed	Maturity & Quality
c4	Additionality is demonstrated	Passed			<i>Passed if required sub-criteria are met</i>	
c4.1	<i>Carbon storage additionality to baseline</i>	Passed	Baseline and alternative scenarios include composting, combustion or left to decompose (mulching, tilling) in-field, charcoal briquette flavoring additive, industrial additive, combustion with energy recovery, and animal bedding/feeding. None of these scenarios result in anthropogenic or natural carbon storage; thus, the project is deemed additional to the baseline.	Puro Additionality v1.9 - Terra-20JAN2025.docx	Required to be passed	Technical eligibility
c4.2	<i>Financial additionality of facility</i>	Passed	The project is deemed financially additional based on the preliminary evidence provided. Further financial model information will be provided during the third-party audit.	Puro Additionality v1.9 - Terra-20JAN2025.docx	Required to be passed	Technical eligibility
c4.3	<i>Regulatory additionality</i>	Passed	The project is not mandated by existing laws, regulations, or other binding obligations in the USA.	Puro Additionality v1.9 - Terra-20JAN2025.docx	Required to be passed	Technical eligibility
c4.4	<i>Production equipment is newly built (i.e. not an existing facility or a retrofit of existing facility)</i>	Assessed	The production equipment is newly built and in operation since July 2024.	Biochar production equipment questionnaire Terra-14JAN2025.xlsx	Required to be assessed	Maturity & Quality
c5	Facility has monitoring, reporting, and LCA capabilities or tangible plans	Passed			<i>Passed if required sub-criteria are met</i>	

c5.1	<i>Protocol for biomass and biochar record keeping is prepared</i>	Assessed	Records of biochar production, biomass usage, and biochar sales and transport have been provided, demonstrating Applied Carbon, Inc.'s monitoring capabilities. A preliminary protocol for monitoring and data collection was prepared; documentation is pending finalization.	Data Capture Descriptions and Definitions Puro Terra-14JAN2025.docx; M5 Run Tracking - Puro Terra-07JAN2025.xlsx	Required to be assessed	Maturity & Quality
c5.2	<i>Protocol for dry mass determination of biochar is prepared</i>	Assessed	Protocol for dry mass determination of biochar has been prepared; documentation is pending finalization.	Moisture Measurement and Dry Calculation Procedure Terra-SEP2024.pdf	Required to be assessed	Maturity & Quality
c5.3	<i>Protocol for biochar sampling and laboratory analysis is prepared (permanence and environmental quality)</i>	Assessed	A preliminary protocol for biochar sampling and laboratory analysis has been prepared; however, documentation is pending finalization.	C5.4 - Biochar Quality Assurance Terra-12JAN2025.pdf; Biochar Sample Collection and Serialization Terra-14JAN2025.docx.pdf; Homogenization Procedure Terra-10JAN2025.docx; Biochar Quality Assurance PURO.v.1.12.25.pdf	Required to be assessed	Maturity & Quality
c5.4	<i>Monitoring and reporting plan of facility emissions is prepared</i>	Assessed	A preliminary monitoring and reporting plan has been prepared; however, documentation is pending finalization.	C5.4 - Biochar Quality Assurance Terra-12JAN2025.pdf	Required to be assessed	Maturity & Quality
c5.5	<i>An LCA model specific to the facility's operation is prepared</i>	Assessed	A preliminary LCA model was provided, with a supporting spreadsheet model, illustrating that LCA modelling has started.	C5.5_LCA Model Narrative_Terra-20JAN2025.docx; puro_LCA Model_Terra-27DEC2024.xlsx	Not required	Maturity & Quality
c6	Facility has likely co-benefits and positive SDG impacts	Passed			<i>Passed if required sub-criteria are met</i>	
c6.1	<i>Facility-specific co-benefits have been identified</i>	Assessed	Identified co-benefits include improved soil health, nutrient and water retention, enhanced microbial activity, neutralizing acidic soils, and minimized field compaction. In addition, rural economies are expected to benefit from job opportunities created with biochar-production related activities and operations.	Puro Project Description Terra-22JAN2025.docx; Applied_Carbon-end user one pager marketing Terra-22JAN2025.pdf; Biochar Marketing at Applied Carbon 22JAN2025.docx	Required to be assessed	Maturity & Quality
c6.2	<i>Facility-specific SDG targets or indicators have been identified</i>	Assessed	No positive impacts are currently being considered for certification as SDG attributes.	Applied Carbon SDG 13 Terra-14JAN2025.docx	Required to be assessed	Maturity & Quality

c7	Facility team has access to relevant knowledge and skills	Passed			<i>Passed if required sub-criteria are met</i>	
c7.1	<i>Relating to biomass sourcing, handling, processing</i>	Assessed	The team has a broad range of skills, expertise and experience in all relevant sectors relating to biochar production and its use. In addition, the team has experience in developing projects that require monitoring and carbon accounting.	C7 Biographies of Relevant Company Staff Terra-22JAN2025.docx	Not required	Maturity & Quality
c7.2	<i>Relating to thermochemical processes</i>	Assessed			Not required	Maturity & Quality
c7.3	<i>Relating to biochar use</i>	Assessed			Not required	Maturity & Quality
c7.4	<i>Relating to monitoring and carbon accounting</i>	Assessed			Not required	Maturity & Quality
c8	Environmental and social safeguards	Passed			<i>Passed if required sub-criteria are met</i>	
c8.1	<i>Stakeholder consultations have been planned or conducted</i>	Assessed	Initial meetings with local growers have been conducted to identify key early adopters of new technologies, with whom contact information has been shared. In addition, third-party consultants are contracted to develop the community benefits plan for the project, which includes identifying key stakeholders and developing the engagement strategy.	AC grower meeting Jan 9 2025 El Campo TX.docx; TRC_Applied-Carbon_Rev_Proposal_Dec_2024_v2 – signed.pdf; Community Benefits Plan - DOE proposal.docx; Stakeholder Engagement Report Terra-20JAN2025.docx; Stakeholder engagement evidence [Folder]	Required to be assessed	Maturity & Quality
c8.2	<i>Regulation applicable to facility has been identified</i>	Assessed	A third-party consultant has identified applicable regulations and provided a detailed report on the requirements to be met by the facility.	C2.5a - All4 for Houston TX - Applied Carbon, Inc. Permit Strategy Memorandum.pdf; C2.5b - All4 DRAFT - Multi-State Permitting Strategy Dec 2024.pdf	Required to be assessed	Maturity & Quality
c8.3	<i>Procedures to acquire relevant permits have been identified, started, or completed</i>	Assessed	A third-party consultant has identified the relevant Permits by Rules (PBR) for facility operation in Texas, under the 30 Texas Administrative Code (TAC). These PBRs do not require facility registration.	C2.5a - All4 for Houston TX - Applied Carbon, Inc. Permit Strategy Memorandum.pdf; C2.5b - All4 DRAFT - Multi-State Permitting Strategy Dec 2024.pdf	Required to be assessed	Maturity & Quality