

Terms of Reference (ToR)

Independent External Technical Review

BCR0021 – Recovery, Destruction and Utilization of Methane from Landfill Gas
Public Consultation Draft | October 21, 2026

1. Background

BioCarbon Cert has developed Methodology BCR0021 to quantify greenhouse gas (GHG) emission reductions resulting from the recovery, destruction and energy utilization of gas generated at solid waste disposal sites.

The methodology covers new and existing systems, expansions, upgrades, reactivations and different gas destruction and utilization configurations, including flaring, electricity generation, thermal energy recovery and gas supply for eligible energy uses.

Its main technical foundation is ACM0001, Version 19.0, supplemented by AMS-III.G and relevant Clean Development Mechanism (CDM) tools. BCR0021 incorporates specific requirements of the BCR Standard and applicable BioCarbon normative tools.

As part of the methodology development and approval process, BioCarbon Cert will subject BCR0021 to an independent external technical review.

2. Objective of the Review

The objective is to assess the scientific and technical robustness, environmental integrity, internal consistency and ability of BCR0021 to produce conservative, reproducible and verifiable estimates of GHG emission reductions.

The review shall determine whether the methodology:

- a) Establishes clear and verifiable applicability and eligibility conditions.
- b) Defines plausible and conservative baseline scenarios for eligible configurations.
- c) Prevents non-additional crediting and systematic overestimation of emission reductions.
- d) Incorporates quantification procedures consistent with the technical methodologies and tools on which it is based.
- e) Adequately identifies and addresses project emissions, leakage and uncertainty.
- f) Establishes sufficient monitoring, measurement, quality control and traceability requirements.

- g) Prevents double counting and incentives to artificially prolong waste disposal or deliberately increase methane generation.
- h) Supports application and verification across different technological and jurisdictional contexts.

3. Scope of Work

The independent reviewer shall assess, at a minimum, the following components.

3.1 Applicability, Eligibility and Project Boundaries

Assess the clarity and consistency of applicability conditions, eligible activities and technologies, exclusions, energy utilization configurations, and physical, geographical, temporal and GHG accounting boundaries.

Confirm that quantification and monitoring procedures adequately cover the technologies and applications expressly included within the methodology's scope.

3.2 Baseline and Additionality

Assess:

- a) Identification of alternative scenarios and consistency with the BioCarbon Baseline and Additionality Tool.
- b) Treatment of new landfills, existing systems, expansions, upgrades and reactivations.
- c) Correct application of the four baseline methane destruction cases.
- d) Treatment of regulatory, contractual and operating obligations and pre-existing methane destruction.
- e) Representativeness of historical data, operating-performance adjustments and baseline reassessment.
- f) Additionality assessment where electricity, heat, gas sales or other economic benefits generate revenues or savings.

3.3 Quantification of Emission Reductions

Verify the scientific, mathematical and dimensional consistency of Equations 1–35 and their associated definitions, units, factors, assumptions and cross-references.

The review shall specifically address:

- a) Methane recovery and destruction by flaring, including destruction efficiency and emissions from incomplete combustion.

- b) Methane oxidation factors, characterization of landfill covers and conservative adjustments.
- c) Ex ante methane generation and recovery estimates and application of TOOL04 without double accounting.
- d) Mass flow determination, methane concentration, density, measurement intervals and allocation among devices.
- e) Emission reductions from displaced electricity, thermal energy and natural gas consumption.
- f) Project emissions from electricity and fossil fuel consumption, transportation of gas by truck and physical methane leaks from dedicated pipelines.
- g) Consistency of annual net emission reduction calculations and prevention of double counting between emission components.

The reviewer shall perform representative calculation checks to assess the reproducibility of the main procedures, including relevant baseline cases and project configurations.

3.4 Leakage and Perverse Incentives

Assess the identification, materiality, quantification and conservative treatment of leakage, including the distinction between project emissions and emissions outside the project boundary attributable to the activity.

Review safeguards against:

- a) Crediting methane destruction that would already have occurred under the baseline.
- b) Displacement of waste separation, recycling, composting or alternative treatment practices.
- c) Deliberate increases in methane generation.
- d) Artificial prolongation of waste disposal through carbon-credit revenues.

3.5 Uncertainty, Conservativeness and Data Quality

Assess parameter selection, representativeness of data sources, measurement uncertainty, default factors and treatment of missing or invalid data.

Verify consistency between BCR0021's specific procedures and the BioCarbon Conservative Approach and Uncertainty Management Tool.

3.6 Monitoring, Reporting and Verification

Assess the adequacy and consistency of:

- a) Parameters available at validation and parameters monitored during project operation.

- b) Measurement frequencies, equipment, instruments and calibration requirements.
- c) Procedures for determining gas flow and methane concentration.
- d) Monitoring of flare operation and efficiency and eligible energy utilization equipment.
- e) Gas-flow reconciliation, mass and energy balances, and traceability of gas supplied to third parties.
- f) Conservative treatment of missing data and records required for verification.

3.7 Methodological Consistency and Technical References

Assess consistency between BCR0021 and ACM0001 v19.0, AMS-III.G v10.0 and the expressly applicable CDM methodological tools, identifying adaptations that require further technical justification.

Verify consistency with the applicable BioCarbon normative tools without requiring the methodology to reproduce provisions already established at Program level.

The reviewer shall also assess BCR0021's alignment with the methodology-relevant requirements of the ICVCM Core Carbon Principles and Assessment Framework and the CORSIA Emissions Unit Eligibility Criteria. The assessment shall identify any material methodological gaps and recommend proportionate corrective measures, where necessary, considering requirements already addressed by the applicable BioCarbon Tools. It shall not constitute a comprehensive assessment of the BioCarbon Program or project-specific eligibility.

3.8 Transparency, Replicability and Document Consistency

Assess clarity of instructions, reproducibility of calculations, consistency between quantification equations and monitored parameters, and technical equivalence between the Spanish and English versions.

4. Deliverables

The reviewer shall provide:

- a) An independent technical review report covering the components identified in the scope of work.
- b) A structured findings matrix identifying the relevant section, finding, technical justification, significance and recommendation.
- c) Representative quantitative checks supporting the assessment of key equations and procedures.

d) An overall technical conclusion concerning methodological robustness, environmental integrity, conservative quantification and suitability of BCR0021 for application under the BioCarbon Program.

Findings shall clearly distinguish between:

-Critical findings: deficiencies that may compromise environmental integrity, quantification, additionality, replicability or verification of mitigation outcomes.

- Advisory recommendations: technical or editorial improvements that do not prevent appropriate application of the methodology.

Recommendations shall be specific, technically justified and proportionate to the identified findings. A general rewrite of the methodology is not required.

5. Eligibility Requirements for Applicants

Applications may be submitted by independent professionals or multidisciplinary review teams. A lead reviewer shall be designated where a team is proposed.

Applicants shall demonstrate relevant experience in:

- a) Solid waste disposal site engineering and management.
- b) Landfill gas generation, collection, destruction and utilization.
- c) Methane emissions modeling and GHG accounting.
- d) CDM methodologies and carbon project quantification and monitoring procedures.
- e) Additionality, baseline scenarios, uncertainty, leakage and conservativeness assessments.
- f) Gas measurement systems, flare performance, and mass and energy balances.
- g) Methodology development, independent technical review, validation or verification of mitigation projects.

The reviewer or review team shall collectively demonstrate the technical competence required to cover the full scope of the review.

6. Independence and Conflict of Interest

To safeguard independence:

- a) The reviewer shall not have participated in the development of BCR0021.
- b) The reviewer shall disclose any professional, financial or contractual relationship that could create an actual, potential or perceived conflict of interest.
- c) A conflict-of-interest declaration shall be signed before commencement of the review.
- d) All costs associated with the review shall be borne exclusively by BioCarbon Cert.

The independent technical review does not constitute project validation and does not replace the responsibilities of conformity assessment bodies.

7. Selection Process

BioCarbon Cert shall evaluate proposals based on technical competence, relevant sectoral and methodological expertise, independence, proposed review approach and ability to complete the assignment within the required timeline.

Applicants shall submit professional credentials or team profiles, relevant experience, proposed methodology and work plan, availability, financial proposal and conflict-of-interest declaration.

8. Timeline

The independent external technical review is expected to be completed within two (2) weeks following contract signature and receipt of the required documentation.

The final schedule shall be established contractually.

9. Submission of Proposals

Proposals shall be submitted to: biocarbon@biocarbonstandard.com

Subject: Independent External Technical Review – BCR0021

Application deadline: November 4, 2026