

BOLD
CARBON (CH₄)

Breakthrough in Organics Landfill Diversion (BOLD)

A carbon credit designed to accelerate the transition to a resource-efficient, low-carbon, and inclusive circular economy.

BOLD Carbon (CH₄)-SSC

dMRV Methodology: verification and certification of prevented methane emissions from aerobic composting of organic waste at small-scale, off-site professional composting facilities (ssc) and distribution of rewards to supply chain contributors.

Version: 1.0.2

Published: September 2, 2025 (next revision by June 3, 2026)

Author of the dMRV Methodology: [Caio de Teves Inacio](#)

Developer of the dMRV Technology: Solidos Brasil LTDA

For: Carrot Foundation (www.carrot.eco)

Application: Carrot Network (public registry)

For comments & feedback: method@carrot.eco

For updates, see Carrot's [website](#)

1. OVERVIEW

Organic waste represents 49% of global waste, and while it is 100% recyclable, at least 89% of it ends up in landfills¹, where it decomposes anaerobically and generates methane, a potent greenhouse gas (GHG). Landfills are the third largest emitters of anthropogenic-derived methane (CH₄), representing 11% of global methane emissions² and between 3.2%³ and 5%⁴ of global GHG emissions. Tackling methane emissions has become a top priority for combating climate change⁵ because methane has a global warming potential over a 100-year period (GWP100) that is 28 times greater than carbon dioxide (CO₂)⁶. The challenge is made more difficult by the fact that methane emissions continue to grow while needing to be reduced by 1/3 by 2030 to keep global warming below 1.5 degrees Celsius.⁷

But this is only part of the picture. Organic waste, when mixed with recyclables, also hinders the work of sorting and recycling other materials, reducing overall recovery volumes and recycling rates. As recyclable materials are buried in landfills or burned in incinerators, additional raw material extraction, hauling, and processing are required—all of which are very carbon-intensive and could be avoided. The existing inefficiency in resource management presents a tremendous opportunity to not only preserve natural resources and eliminate waste but also to decarbonize our global economy. It is estimated that a transition to a circular economy can reduce global GHG emissions by 45%⁸. A separate study suggests that if we simply double our current circularity rate, we could address 85% of the GHG reduction needed to stay below 2 degrees Celsius⁹, **making the transition to a circular economy one of the most important and effective strategies for mitigating climate change available today.**

Removing organic waste from traditional landfill waste streams and directing it to proper biological treatment, such as professional composting facilities, **is the key to unlocking the transition to a low-carbon circular economy—the subject of this methodology.** Unfortunately, organic waste sorting, hauling and treatment are more expensive than landfilling

¹ World Bank: What a Waste 2.0 [Report](#)

² World Bank: What a Waste 2.0 [Report](#)

³ Hannah Ritchie (2020), published online at OurWorldInData.org - [“Sector by sector: where do global greenhouse gas emissions come from?”](#) [Online Resource]

⁴ Greenhouse Gas Emissions from Landfills (Zhang, Xu, Feng, Chen), [published April 16 2019](#)

⁵ IPCC: Sixth Assessment [Report](#)

⁶ Greenhouse Gas Protocol: 100-year time horizon [table](#).

⁷ Climate & Clean Air Coalition: Article: New IPCC Report Bolsters Evidence that Methane Reductions are Key to Preventing Climate Catastrophe

⁸ Climate Governance Initiative, in collaboration with Accenture for the World Economic Forum: [Climate Governance and the Circular Economy: A Primer for Boards—White Paper](#) (OCT 2023)

⁹ Circle Economy Foundation: Circularity Gap [Report](#) 2021

or incineration in virtually every location, presenting a serious economic and political challenge for putting the necessary infrastructure and incentives in place. The BOLD (Breakthrough in Organics Landfill Diversion) Carbon (CH₄) Credit, certified by this methodology, is designed to reward participants for their environmental contributions and encourage others to join in organic waste sorting and composting, thus driving overall system change from a linear “Take > Make > Waste” economy to a circular economy. Carrot utilizes a digital Measurement, Reporting and Verification (dMRV) process for recording, auditing and verifying circularity, along with measuring the GHG emissions avoided at landfills due to verified composting work in accordance with the UNFCCC's AMS-III.F.: [Avoidance of methane emissions through composting, Version 12.0](#)¹⁰ methodology. The proceeds from the sale of credits are distributed to supply chain participants as described in Carrot's [Rewards Distribution Policy](#) and can be verified by anyone as the transactions are recorded on a public blockchain. The process for issuing credits is verified by independent third parties, and the added transparency provided through Carrot's technology aims to make certification affordable and accessible to composting facilities around the world, helping to jumpstart the circular economy everywhere.

The BOLD CARBON (CH₄) credit certification methodology applies established environmental science and digital verification technology to certify and incentivize methane emissions reductions through composting. This methodology is structured to evolve, ensuring both scalability and rigorous standards while remaining accessible and credible within carbon credit markets. By focusing on methane avoidance rather than mitigation, BOLD CARBON (CH₄) delivers immediate climate impact, preventing emissions before they happen rather than attempting to manage them after release. With clear additionality and verifiable outcomes, this methodology supports the transition to a low-carbon, circular economy, providing a structured, transparent, and scalable solution for addressing methane emissions globally.

The following table describes the key elements of the BOLD Carbon (CH₄)-SSC methodology, also referred to as BOLD Carbon (CH₄) or BOLD Carbon throughout this document.

1.1 Summary Table

Subject	<i>The BOLD CARBON (CH₄) digital Measurement, Reporting and Verification (dMRV) methodology establishes the verification and certification process for confirming organic waste (and compostables) diversion from landfills to small-scale professional composting facilities for proper biological treatment and the issuance of carbon credits that reward supply chain participants for their contributions to reducing methane emissions.</i>
----------------	--

¹⁰ UNFCCC (United Nations Framework Convention on Climate Change): AMS-III.F.: [Avoidance of methane emissions through composting --- Version 12.0](#)

BOLD-CARBON is for	<i>BOLD CARBON (CH₄) is <u>for carbon credit buyers</u> (individuals or organizations) that want to offset their carbon and/or methane emissions by supporting small-scale composting that avoids methane emissions at landfills immediately, while more broadly supporting the transition to a sustainable circular economy. (Note: The proceeds from the purchase of the credit are distributed to composting service providers as rewards that can serve as capital to build additional recycling infrastructure and/or introduce much-needed new technologies and to waste generators to reduce costs associated with contracting professional recycling (composting) services. The rewards also serve as incentives for non-participants to join in and engage in organic waste sorting and composting, thus driving behavior and system change.)</i> <i>BOLD CARBON (CH₄) is <u>for composting facilities and organic waste haulers</u> who want to be recognized and receive rewards for the GHG emissions reductions generated by their work. The rewards can serve as new capital to invest in their businesses and come with incentives to improve the digitization of their processes and supply chains.</i> <i>BOLD CARBON (CH₄) is <u>for waste generators</u> that want to certify organic waste recycling (composting) and receive rewards that can help reduce sorting, hauling, and composting costs.</i> <i>BOLD CARBON (CH₄) is <u>for municipalities</u> that want to comply with federal or state waste reduction and/or circular economy mandates by advancing a private market for small-scale composting services that will improve overall recycling rates while also reducing public costs with waste hauling, landfilling and incineration.</i> <i>BOLD CARBON (CH₄) is <u>for regulators</u> that want to jump-start Extended Producer Responsibility (EPR) schemes in the agri-food sector, whereby food producers help cover the cost of proper biological treatment of organic waste.</i> <i>BOLD CARBON (CH₄) is <u>for nonprofits</u> that want to be involved in the circular economy and, in particular, food sustainability, waste reduction, and building more engaged and resilient communities.</i> <i>BOLD CARBON (CH₄) is <u>for climate financiers</u> who want to help create a composting market that reduces methane emissions at scale.</i>
Objectives	<i>To uniquely identify and certify methane emissions avoided through the composting of organic waste at small-scale professional composting facilities.</i>

	<i>To identify the good actors participating in well-functioning organic waste-to-compost supply chains.</i> <i>To properly measure and capture the value to society and the environment of methane emissions avoided from composting work.</i> <i>To reward the participants involved in verified organic waste sorting, hauling, and composting work and encourage adoption by those who are currently sending organic waste to landfills, dumps, or incinerators.</i> <i>To help direct new resources efficiently to recycling supply chain service providers so that they can invest in their operations and increase their capacity for performing environmental work.</i> <i>To enhance data transparency and quality and establish trust within the waste management sector by applying new technologies for waste tracking, smart contracts for transparent rewards payments, and digital Measurement, Reporting, and Verification (dMRV) processes for environmental certification and the issuance of carbon credits. The certification of organic waste diversion from landfills and dumps demonstrates a serious commitment to the environment. (Note: Retired BOLD CARBON (CH₄) Credits serve as proof of investment in innovative solutions toward global sustainability and can be used to meet internal ESG goals relating to carbon reduction Net Zero commitments.)</i> <i>To encourage behavior change globally toward improved organic waste sorting and composting, such that methane emissions are avoided at landfills and nutrient-rich compost can be produced to help recover damaged topsoil, which in turn improves plant productivity and captures more carbon from the atmosphere.</i> <i>To serve as a driving force in the fight against climate change by diverting organic waste from landfills and dumps toward a circular economy generating multiple economic, social, environmental, and climate benefits.</i>
Results	<i>BOLD CARBON (CH₄) will accelerate the transition from a wasteful, linear economy to a resource-efficient, low-carbon, and inclusive circular economy. BOLD CARBON (CH₄) helps cover the costs and encourages the sorting of organic waste into dedicated supply chains for biological treatment, thereby unleashing the full potential of the biological and technical cycles of a circular economy.</i> <i>BOLD CARBON (CH₄) will reduce pollution to land, water, and the atmosphere; preserve vital natural resources for future generations to use; reduce GHG emissions associated with needless extraction,</i>

	<i>transportation, and processing of raw materials; restore topsoil with nutrient-rich compost that can help secure future food supplies; dramatically reduce the practice of landfilling and incineration and the expense that goes with it to the government and ultimately the taxpayer; and generate tens of millions of jobs, including for many of the most vulnerable among us, in composting, recycling, repair, and remanufacturing services.</i> <i>BOLD CARBON (CH₄) and the Carrot Network will form communities¹¹ that work together locally and globally to build and sustain a resource-efficient, low-carbon, and inclusive circular economy.</i>
Geography	<i>Global</i>
SDGs	Primary: <i>13: Climate Action (avoid methane emissions at landfills and carbon emissions from eliminating needless extraction, hauling and processing activities resulting from improved recycling rates)</i> Secondary: <i>[Important note: while there are co-benefits associated with the avoided methane emissions at landfills due to composting organic waste, these benefits are not to be considered as part of this credit or priced into the credit, as they are already accounted for in a recycling credit. All carbon credits issued over the Carrot platform are to be considered commodities. We present co-benefits only to advance general awareness regarding the value of composting.]</i> <i>03: Good Health and Well-Being (avoid pollution-related diseases)</i> <i>06: Clean water and sanitation (avoid leachate from landfills)</i> <i>08: Decent Work and Economic Growth (green jobs in recycling, composting, repair and remanufacturing)</i> <i>12: Ensure Sustainable Consumption and Production (circular economy)</i> <i>14: Life Below Water (sorted organic waste improves recovery and recyclability rates of technical materials (e.g., plastics) and reduces discharges to water bodies)</i>

¹¹ In the future, Carrot aims to include local communities in the decision-making process relating to reward distribution from credit sales.

	<i>15: Life on Land (nutrient-rich compost restores topsoil, reverses desertification and improves soil biodiversity)</i> <i>17: Partnerships for the Goals (working together on effective circular economy & climate financing)</i>
Enviro. Claims	<i>Proof of reduced greenhouse gases can only be claimed through the ownership of retired Tokenized Carbon Credits (TCCs). TCCs represent an amount of carbon equivalent emissions (t-CO₂e) measured in metric tons that were avoided through the work of composting.</i> <i>[Important note: Co-benefits cannot be “claimed” through ownership of TCCs or priced in the sale of TCCs as these are already accounted for in the BOLD Tokenized Recycling Credit (TRC). In other words, a TCC should be valued <u>only</u> for the greenhouse gas emissions it successfully avoided at a landfill through composting.</i> <i>[Note 2: Because Recycling Credits (TRCs) can be retired to meet Extended Producer Responsibility mandates and Carbon Credits (TCCs) can be retired to meet Carbon reduction goals, the co-benefits must clearly be attributed to only one of the credits in order to avoid double counting. Carrot determines, as a standard practice, that all co-benefits flow to the TRCs and not the TCCs, ensuring that co-benefits are never double counted while also transforming the carbon credit into a commodity.</i> <i>[Note 3: Carrot addresses any and all risk of double counting of TCCs and the co-benefits of TRCs by tracing each carbon credit and recycling credit to an individual recycled MassID. Each MassID can only be associated with one Tokenized Recycling Credit and one Tokenized Carbon Credit.]</i>
Compatibility	<i>The BOLD Carbon Credit (TCC) is compatible with the BOLD Recycling Credit (TRC). This means that the organic waste, identified uniquely by its MassID on the Carrot network, can also have a recycling credit issued from the BOLD Recycling Credit methodology. TCCs and TRCs are separately verified, measured, and certified for different environmental purposes—one for waste reduction (recycling) and the other for avoided carbon emissions. Each has its utility: TRCs for offsetting waste production in Extended Producer Responsibility (EPR) schemes and TCCs for meeting carbon offsetting goals.</i>

Eligible Participants	• <i>Waste generators (all organic waste producers—e.g., restaurants, bars, companies, food producers, households, etc.)</i> • <i>Organic waste collectors and logistics providers</i> • <i>Composting (Professional, Small-Scale and offsite facilities)</i> • <i>Carrot Network Integrators and platform-certified auditors</i> <i>Projects must be registered through the Carrot Network and submit data via approved digital MRV tools. Waste must be diverted from landfill, open dumping, or incineration and processed through facilities meeting the operational and data integrity requirements outlined in the Accreditation section.</i>
------------------------------	---

TABLE OF CONTENTS

1. OVERVIEW.....	1
1.1 Summary Table.....	2
2. DEFINITION.....	10
3. SCOPE AND APPLICABILITY.....	14
3.1 Scope.....	14
3.2 Applicability.....	14
3.2.1 Participant Eligibility.....	15
Composting Facilities.....	15
Network Integrators.....	15
Non-Profit Beneficiaries.....	15
Waste Generators.....	16
3.2.2 Not Applicable.....	17
3.2.3 Objectives & Considerations.....	17
3.3 Activities and Participants.....	18
3.4 Safeguards.....	19
3.4.1 Protections & Inclusion.....	19
3.4.2 Avoidance of Double-Counting.....	19
3.4.3 Participant Verification.....	20
3.4.4 Data Verification.....	21
3.5 Entry into force.....	21

4. NORMATIVE REFERENCES.....	22
4.1 Additional References.....	22
5. PARTICIPATION REQUIREMENTS.....	23
5.1 Carrot's Terms & Conditions.....	23
5.1.1 Know Your Customer (KYC).....	24
5.1.2 Composting Facility Eligibility.....	24
5.1.3 Project Description.....	25
5.1.4 Money Laundering and Combating the Financing of Terrorism.....	26
5.1.5 Compliance with Local Digital Asset Laws.....	26
5.1.6 Commitment to Proper Sorting and Recycling Participation.....	27
5.1.7 Commitment to Data Quality and Self-Policing.....	27
5.1.8 Compliance with labor laws and work conditions.....	28
5.1.9 Compliance with Data Privacy and Confidentiality.....	29
5.1.10 Commitment to Confidentiality.....	29
5.1.11 Transfer of Data Rights.....	29
5.2 Carrot's Token Sale Agreement.....	29
6. BASELINE.....	30
6.1 Project Boundaries.....	30
6.2 Baseline Selection.....	31
6.2.1 Baseline Selection & Approval Criteria.....	35
6.3. Additionality.....	36
6.3.1. Procedures to Determine Additionality.....	36
6.3.2 Composting Projects Eligibility Flowchart.....	39
6.4 Leakage.....	40
6.5 Permanence and Reversal Risks.....	41
6.5.1 Permanence Risks.....	41
6.5.2 Reversal Risks.....	41
6.5.3 No Buffer or Insurance Requirement.....	42
7. QUANTIFYING AVOIDED EMISSIONS.....	42
7.1 Baseline Calculation (BEy).....	43
7.1.1 STANDARD PROCEDURE.....	43
7.2 Standardized Parameters.....	43
7.3 Baseline Calculation Parameters.....	46
7.4 Project Emission Calculation (PEy).....	47
7.5 Calculating Leakage Emissions (LECH ₄ , SWDS, y).....	51
8. ACCREDITATION.....	51
8.1 Participants.....	51
8.1.1 Processors and Recyclers.....	51

8.1.2 Carrot Network Integrators (INTs).....	53
8.1.3 NGOs as Beneficiaries of Rewards.....	53
8.2 Responsibilities.....	54
8.3 Accreditation Period.....	54
8.4 Renewal.....	54
8.4.1 Processors and Recyclers.....	55
8.4.2 Carrot Network Integrators (INTs).....	55
8.4.3 NGOs.....	55
9. MONITORING & MEASURING MASS.....	55
9.1 Mass Recording Requirements.....	55
9.2 Establishing Chain of Custody.....	56
9.3 The Recycler.....	56
9.4 Processors and the Waste Generator.....	57
9.5 Sludge (Domestic and Industrial).....	57
9.6 Carrot Integrators (INTs) & Data Rights.....	57
9.7 Data Responsibilities and Protection.....	57
9.8 Bad Actors, Self-Policing, and Proof-of-Authority.....	58
10. CERTIFICATION OF ACTIVITIES.....	58
10.1 The Certification Process.....	58
10.2 Allowable Project Period.....	59
10.3 Recertification.....	59
10.4 Expiration.....	59
11. ISSUING BOLD CREDITS & DISTRIBUTING REWARDS.....	59
11.1 Credits and Tokenization.....	60
11.2 Rewards Distribution Model.....	60
11.3 Rewards Distribution Discounts for Large Revenue Businesses.....	61
11.4 Exemption from Large Business Qualification.....	61
11.5 The Incentive Mechanism for Full Supply Chain Digitization.....	61
11.6 Recognition of Ecosystem Ideology.....	62
11.7 Token Retirement to Carrot Registry.....	62
11.8 Forward Contracts.....	62
11.9 Refunds.....	63
12. CO-BENEFITS OF COMPOSTING.....	63
12.1 Avoiding the “bad and the ugly”.....	63
12.2 Increasing “the good”.....	64
13. ENVIR., SOCIAL & ECONOMIC ACCOUNTING.....	64
14. OFFSETS AND GREENWASHING.....	65
15. PENALTIES & SUSPENSIONS.....	66

16. QUALITY ASSURANCE AND QUALITY CONTROLS.....	67
17. UNCERTAINTIES.....	68
17.1 Market.....	68
17.2 Technology.....	69
17.3 Adoption.....	69
17.4 Quantification of composted waste.....	70
17.5 Baseline emissions.....	70
17.6 Emissions.....	70
17.6.1 Emission of the composting process.....	70
17.6.2 Emission from the composting unit (e.g., machines and vehicles).....	71
18. COMMITMENT TO THE MARKET.....	71
19. APPENDIX.....	71
19.1 Country Conversion Table.....	71
20. DOCUMENT HISTORY.....	72

2. DEFINITION

The following glossary lists some of the key definitions for basic comprehension of this methodology. A full glossary can be found on the Carrot website at:

<https://whitepaper.carrot.eco/carrot-methodologies/glossary>.

Aerobic Composting: A process for producing nutrient-rich compost through aerobic decomposition of organic matter utilizing microbes and natural processes. Aerobic composting produces little to no methane emissions when compared to anaerobic decomposition in landfills and dumps.

AMS (Approved Methodology, Small-Scale): A methodology that has been approved by the Board for application to CDM project activities or CPAs. Approved methodologies are publicly available on the UNFCCC CDM website.

Carrot Fndn: A foundation in Switzerland building the Carrot Blockchain Network and creating a global community that will utilize, manage, own, and support it. Carrot Fndn's mission (purpose) is to accelerate the transition to a resource-efficient, low-carbon, and inclusive circular economy.

Carrot Network (or "Carrot"): The technology infrastructure utilized to record product and waste supply chain data, apply a digital Measurement Reporting and Verification (dMRV) process for certifying environmental gain and issuing credits, and provide a distribution mechanism for rewarding supply chain participants who contributed to the environmental gain realized. The Carrot Network is stewarded by the Carrot Fndn, and governance will be progressively distributed to its global community of users.

Carrot Registry: A repository where all retired credits are stored for public consultation. The Carrot Registry holds all of the Tokenized Carbon Credits and Recycling Credits (non-fungible tokens) that are no longer transferable and which can be used to prove environmental (waste and carbon) contributions (claims.)

Circle Economy: A system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. The circular economy is driven by three principles: eliminate waste and pollution, use circular products and materials (at their highest value), and regenerate nature ([Ellen MacArthur Foundation](#)).

Carrot Network Integrator (INT): An INT is an accredited supply chain tracking, waste logistics, and waste recycling software or hardware application that records activity data of all types, including but not limited to product and waste identification, sorting, hauling, processing, measuring, auditing, recycling, upcycling, and reuse, and submits them to the Carrot Network.

MassID: A MassID is a unique digital asset created when any amount of post-consumer or post-industrial waste is identified and measured in the market and where custody is established. MassIDs represent publicly verifiable ownership, and therefore responsibility, over a unit of waste mass with an immutable record of recycling operations (executed service orders) logged in it. MassIDs are utilized to establish a chain of custody of waste in a manner that enables attaching waste responsibility all the way to the source of waste creation (its location and user.) MassIDs are the mechanism through which rewards can be distributed to Participants recorded along the recycling and reuse supply chains.

Network Integrator: a system that provides data to the Carrot Network through Carrot's APIs (Application Programming Interface). Network Integrators include applications that track logistics, recycling, reuse, and production for resources, materials, waste, and products.

NGO Beneficiary: a non-profit organization that receives token rewards from the Carrot Network. NGO Beneficiaries can be accredited if their mission is related to advancing the transition to a circular economy through activities related to research, development, awareness, education, or other activities.

Non-Fungible Token (NFT): is a blockchain-based, cryptographic token that attributes single ownership to a unique digital or physical asset. Cryptographic signatures, native to blockchains, store transactional information, including the prior and current owners of each NFT.

NFT Smart Contract: is a digital contract that governs how NFTs function. It is a blockchain computer program that executes automatically when predetermined terms and conditions are met. Smart contracts issue NFTs and determine an owner, set a price for purchase and payouts (also known as royalties) to other contributors, and establish rules for how the NFT can be deactivated (retired or burned), among many other functions.

Organic Waste: is a biological material originating from plants and animals that will no longer be consumed, such as food, food waste, green waste, sludge (industrial, domestic, and sewage), pulp, paper, cardboard, wood and wood products, etc.

Participants: supply chain participants include individuals or businesses involved in sorting, hauling, storing, processing, recycling, and buying recycled materials. They include:

- **Waste Generator:** is an individual or business (excluding processors and recyclers) with an identified location where waste is picked up. The Waste Generator can be considered the source of where waste is created (see Waste Source below) and holds the critical task of sorting waste correctly;
- **Hauler:** a business and/or individual that transports waste from one location to another;
- **Processor:** a business that sorts waste without performing comprehensive mass transformation;
- **Recycler** (aka End Processor): a Processor that performs the most comprehensive work of mass transformation for reintroduction into the economy as a new input (e.g., Composter);
- **Buyer of recycled materials:** a business and/or individual that purchases recycled materials for use in their production processes.

Producer: a company involved in any activity along the product supply chain, including: sourcing (e.g., extracting raw materials, growing biological products (crops, cattle, etc.)), hauling, processing, converting, manufacturing, filling, packing, and selling.

Recycling Service Providers: individuals or businesses involved in hauling, sorting, storing, processing, and recycling. They include Haulers, Processors and Recyclers.

Solid Waste: Material that is unwanted and insoluble (including gases or liquids in cans or containers). Hazardous waste is not included in the definition of solid waste. Solid waste may include residual waste.

Tokenized Carbon Credit (TCC): A blockchain token representing an amount of carbon-equivalent emissions avoided, measured in metric tons. TCCs are issued for verified emissions prevented or removed from the atmosphere. The purchase of a TCC distributes rewards to contributing Participants' digital wallets in accordance with Carrot's Reward Distribution Policy. Retired TCCs (to Carrot's Registry) serve as proof of verified climate action and can be utilized by companies to meet decarbonization goals.

Tokenized Recycling Credit (TRC): is a blockchain token representing the environmental work expended by a set of contributing Participants to recycle a unique amount of waste, measured in metric tons. The purchase of a TRC distributes rewards to contributing Participant's digital wallets in accordance with Carrot's Reward Distribution Policy. Retired TRCs (to Carrot's Registry) serve as proof of environmental contribution and can be utilized as waste offsets by Producers in Extended Producer Responsibility programs.

Waste Delivery Summary Report: a compliance document issued by the Recycler and submitted to an environmental regulator that reports the amount and type of post-consumer and post-industrial waste received at the recycling facility during a given period.

[Example: In the case of Brazil, the document is called a final destination certificate, or *Certificado de Destinação Final* (“CDF”). The CDF is submitted to the Brazilian Ministry of the Environment and it contains a series of waste transport manifests (known as “MTRs”, see separate definition.)]

Waste “Source”: The source of organic waste creation is an identified Waste Generator where a resource has been consumed and transformed into waste at a given location. The waste source may also be further distinguished between post-consumer and post-industrial.

Waste Transport Manifest: is an environmental compliance document for reporting waste hauling activities to environmental government agencies. It identifies the location and holder of the waste where it was collected, the Hauler, the location and business where it was (or will be) dropped off, along with the physical properties of the materials being hauled.

[Example: in the case of Brazil, this document is referred to as the *MTR*¹² (*Manifesto de Transporte de Resíduos*). The MTR document is registered in a federal waste monitoring and reporting systems known as SINIR (*Sistema Nacional de Informações sobre a Gestão de Resíduos Sólidos*.)]

Windrow System: a composting installation where waste is composted in a long, low ridge (row). This shape is designed to passively aerate the waste that is undergoing decomposition by making use of wind and natural drafts caused by the increased temperatures of the biodegradation process. Windrows apply a mixture of brown (carbon-rich) and green (nitrogen-rich) materials in ratios that optimize nutrient compost formation and structures that enable ideal oxygen and humidity levels for microbial activity.

Zero Waste “Definition”: The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health. ([ZWIA](#))

Zero Waste Goal: To reduce waste to landfills by more than 90% by reducing, reusing, recycling, and composting resources without incineration.

¹² Brazil law related to how waste transport manifests must be utilized and PORTARIA Nº 280, DE 29 DE JUNHO DE 2020. BRASIL. Institui o Manifesto de Transporte de Resíduos - *MTR* nacional, como ferramenta de gestão e documento declaratório de implantação e operacionalização do plano de gerenciamento de resíduos, dispõe sobre o Inventário Nacional de Resíduos Sólidos. Available at: <https://www.in.gov.br/en/web/dou/-/portaria-n-280-de-29-de-junho-de-2020-264244199>

3. SCOPE AND APPLICABILITY

3.1 Scope

The BOLD CARBON (CH₄) methodology comprises a process for certifying GHG emissions avoidance at landfills from organic waste diverted to small-scale, legally qualified, professional composting facilities. Carrot utilizes a digital Measurement, Reporting, and Verification (dMRV) process to identify contributors in sorting, hauling, and processing organic waste, measuring, reporting, and verifying composting work and associated emissions reductions, while also recording the distribution of rewards from the sale of BOLD CARBON (CH₄) Credits to each contributor.

For the correct accounting of CO₂e (e.g., methane) emissions reductions, composting facilities must report the arrival of organic waste at their facilities, the types and quantities of waste composted, the process for composting utilized, the destination to which the compost is sent, the emissions baseline (alternative waste treatment) upon which the composting emissions are compared, as well as all of the activities occurring outside of the 200 km radius project boundary.

The scope of this methodology encompasses:

- The classification of organic waste processing units that utilize aerobic and thermophilic composting as a technique to transform organic wastes into organic fertilizer or soil conditioner, as defined and established by a local regulatory agency.
- Tools for calculating the emissions avoided (e.g., methane) by the composting project compared to the anaerobic decomposition of waste in a baseline scenario (i.e., landfill, landfill with flaring, dump).
- The parameters that must be monitored by the composting unit, as well as the appropriate format for data presentation, are necessary to measure the annual quantity of emissions avoided.
- Quality management requirements for the accreditation of the composting company.
- Mandatory legal requirements for facility operation.
- Processes for data capture, monitoring of activities, and identification of supply chain contributors.

3.2 Applicability

This methodology applies to all non-toxic, source-sorted organic waste collection, hauling, delivery, and composting activities at off-site, professional, small-scale composting facilities located in all geographies.

Applicable organic waste types for this methodology include, but are not limited to: food waste, green waste, and certified compostable products, materials, and packaging capable of decomposing completely and in a timely manner through the process of aerobic composting.

3.2.1 Participant Eligibility

Composting Facilities

Composting facilities are eligible under this methodology if they meet all of the following criteria:

1. Project Size: CO₂e emissions reductions do not exceed 60,000 metric tons (60 kt) over a 12-month period.
2. Project Boundary (200 kilometers): All emissions associated with organic waste collection, sorting, processing, treatment, hauling, and delivery (of compost) must be measured. The AMS-III.F (Avoidance of Methane Emissions through Composting, version 12.0) provides default values for emissions factors occurring within a 200 km radius of the composting facility, but any hauling activities that occur beyond the 200 km radius must be individually identified and measured to be discounted from the total emissions reductions that are calculated.
3. Waste Quality: The composting facility must receive only non-toxic, sorted organic material and will be ineligible if it receives mixed municipal solid waste (MSW).
4. Lawful: Participation in this methodology requires that participants meet all local laws, statutes, and regulations, regardless of whether or not they are enforced, including not being sued for slave labor or environmental crimes or having any outstanding conduct adjustment processes with the local Justice Department where remediation has not yet begun.
5. Compost Certification: Compost qualifies as a soil conditioner or organic fertilizer, meeting all non-toxicity requirements, including per- and polyfluoroalkyl substances (PFAS), in accordance with local regulation, if one exists.
6. Data Management: The composting facility must, at a minimum, utilize a digital system to record waste arrival at its facilities, recording the waste type and amount in weight and identifying the owner of the waste (Waste Generator or Processor) and the Hauler.
7. Additionality: The composting facility meets the additionality criteria outlined in [Section 6.3 Additionality](#).

Network Integrators

Network Integrators are eligible under this criteria as long as

1. The platforms are able to provide waste management, logistics, and recycling data in a manner that meets Carrot's performance requirements and is secure and stable.

Non-Profit Beneficiaries

Non-Profit beneficiaries from credit rewards to large Waste Generators are eligible under this criteria as long as

1. The organization is legally constituted as a nonprofit organization.

2. The organization's mission is to either advance the circular economy or offer free education to vulnerable children.
3. The organization is in excellent legal standing, meeting all local laws, statutes, and regulations, regardless of whether they are enforced or not. The organization is not being sued for slave labor or environmental crimes or undergoing any conduct adjustment processes with the local Justice Department. These will be verified annually through the accreditation process.

The above criteria for Recyclers, Network Integrators and Non-Profit beneficiaries are each verified during the accreditation process and at renewal every 12 months. Independent local auditors who are experts in their field verify activities related to logistics and recycling (composting). Compliance with the methodology is monitored through accreditation, independent third-party audits and Carrot's digital Measurement, Reporting, and Verification platform.

Waste Generators

Waste Generators are eligible under this criteria as long as

1. Organic waste is sorted as soon as it is generated and carefully managed to not mix with other waste types before it is collected by an organic waste Hauler. (Haulers, Processors and Recyclers verify this activity.)
2. A digital record is created through a waste management or hauling platform that identifies the material type and weight of the waste mass. (This activity is performed by Network Integrators that are accredited and operate on the Carrot Network.)

[Note: Waste Generators identified as large revenue-generating organizations will have rewards significantly discounted to them, thereby addressing concerns about companies benefiting even in scenarios where they have a moral or legal obligation to sort, haul, and compost organic waste. The discounted rewards will be distributed to accredited NGOs. The ecosystem at large will still benefit from the added rewards, and service providers will obtain important resources to further invest in property, plants, and equipment. More information can be found at [Rewards Distribution Policy](#).]

Finally, sorting organic waste immediately after it's produced to avoid contamination and ensure safe composting is critical. This methodology does not exclude any Waste Generator, Processor or Recycler that wants to participate in composting and BOLD CARBON (CH₄) credit certification as long as they meet the [Eligibility](#) and [Additionality](#) requirements. Even those required by law to biologically treat organic waste may be eligible, as sorting rates typically don't improve sufficiently due to a lack of legal enforcement. The business of composting always competes with free dumping and cheap/subsidized landfilling and waste-to-energy and the lack of infrastructure, incentives and educational programs prevents the proper sorting practices from taking place, which is critical for increasing composting rates.

3.2.2 Not Applicable

Waste that is not organic **is not within the scope** of this methodology.

Organic waste that has been contaminated **is not applicable** under this methodology.

This methodology **does not apply to** organic waste that is identified and tracked to composting facilities that receive mixed solid waste, as these sites experience extensive contamination and often result in landfilling post facto.

Projects involving co-composting (composting of solid waste with liquid effluents) are excluded.

The project (composting facility) must demonstrate that it is not part of a larger carbon project.

The project (composting facility) must demonstrate that it is not participating in more than one carbon credit issuance program. In other words, if it is participating with Carrot, it may not also be participating in another voluntary carbon market (VCM), Clean Development Mechanism (CDM), or other program.

This methodology is not applicable for issuing tokenized recycling credits (TRCs).

[Co-benefits](#) are not measured, certified or sold under this methodology.

3.2.3 Objectives & Considerations

The BOLD CARBON (CH₄) methodology's primary objective is to issue BOLD CARBON (CH₄) credits in an affordable, inclusive, and scalable manner whereby the proceeds serve as rewards to composting supply chain participants and incentives for non-participants to join in. The use of digital Measurement, Reporting, and Verification (dMRV) processes for supply chain and composting verification is important to reducing costs associated with auditing and certification, thereby making participation affordable and worthwhile for all stakeholders. The complexity and cost of certification for credit issuance for small-scale composting have proven to be prohibitive. BOLD CARBON (CH₄), therefore, presents a technology-driven solution to issuing tokenized carbon credits at scale, encouraging the growth of small, decentralized composting facilities around the world.

While BOLD CARBON (CH₄) aims to certify emissions reductions at professional off-site recycling (composting) facilities, the creators of this methodology point out that on-site composting can be of greater environmental value due to avoided transportation emissions if composting work is conducted in a professional manner and the resultant compost is utilized properly. Reducing, or not generating, waste should always be prioritized, in accordance with the [Zero Waste Hierarchy](#).

The Carrot Fndn aims to work initially with **well-established professional composting facilities** that have a strong track record in the market, with evidence of solid financials, good governance,

and experienced teams, thereby reducing the risk of a project being interrupted or canceled. Project diversification under this methodology will also be pursued, such that no project represents more than 20% of total credit issuance before 3 years of the first credit issuance for a given waste type is completed.

Carrot's primary focus is on environmental work. Carrot aims to keep a narrow focus and not pass judgment on the activities of its Participants that extend beyond the environmental work employed and the methodology's [Requirements](#). Many of the Participants are located in developing countries and are working in challenging economic conditions. The rewards that will be distributed will improve financial conditions for Participants, enabling them to make important strides towards performing in a more environmentally, socially, and economically conscious manner.

3.3 Activities and Participants

Confirmation of the delivery of organic waste at a composting facility requires at least: 1) the identification of the last location where the organic waste was picked up (a Waste Generator or Processor) along with the responsible individual at the pickup location (the "Holder"); 2) the hauling company that transported the waste mass; and 3) the Recycler's responsible party at the drop-off location (the "Receiver"), who serves as the "[Validator](#)" of the amount, quality, and type of waste received at the composting facility.

The composting facility ("Recycler") is a key participant in the recycling process, and it must undergo a comprehensive accreditation review, involving an on-site visit by a third-party auditor, to ensure its composting capacity and that it is performing the composting work to scientifically acceptable and legal standards. Each Recycler is responsible for requesting that their data be submitted to this methodology for proper evaluation, certification, and the issuance of BOLD Carbon credits.

Processing facilities that sort organic waste before it reaches a Recycler will also need to be accredited, as they are also an important stakeholder in ensuring proper sorting is conducted before reaching a composting facility.

Both Recyclers and Processors will need to work with their waste management software providers, identified as Carrot Network Integrators ("INTs"), to become accredited by the Carrot Fndn and be considered for certification under the BOLD Carbon (CH₄) methodology.

Waste Generators will need to comply with the [Requirements](#) of this methodology, including undergoing an extensive KYC (Know Your Customer) verification. Additional information will be required of businesses, including disclosing the business size of the operation measured in terms of the annual revenues and the locations where waste is picked up. It is the responsibility of the business managers to sign Carrot's agreements, verify their data, and provide all necessary information.

Haulers will also need to meet all of the Participant Requirements and be identified within the digital management system.

All participants will need to work with Network Integrators (INTs) to ensure that their data is correct and properly submitted to the Carrot Network.

All participants are thoroughly KYC'ed, requiring comprehensive individual and company identification.

3.4 Safeguards

3.4.1 Protections & Inclusion

Carrot works to ensure that the projects submitted to its methodologies are inclusive of a broad set of stakeholders and limit the risk of negative consequences associated with its activities. Carrot aims to assure:

- There is no harm to the environment or the communities involved.
- Human rights are protected.
- Minimum legal requirements are met.
- Corruption and bribery do not occur.

The accreditation of Processors, Recyclers and NGOs is conducted annually to verify and assure, as best as possible, that the activities above are being met continuously.

3.4.2 Avoidance of Double-Counting

To limit the risks of double counting, Carrot employs technological solutions to uniquely identify individual waste mass units (MassIDs) measured in weight (kg) and tracked across the supply chain. Each MassID contains a historical record of logistical and recycling events that are multi-party verified and backed by a chain of custody, as well as the identification of a single responsible owner of a MassID at any given time. Only MassIDs that have verified ownership and confirmation of the last leg of transport arriving at a accredited recycling center and pass the supply chain, composting and greenhouse gas emissions verifications become eligible to be packaged into carbon credits. Each credit holds a unique set of MassIDs, and no MassID can be attributed to more than one carbon credit, ensuring that no double counting of credits can occur. All of the processes relating to tracking, auditing, and certification, or digital measurement, reporting and verification (dMRV) are stored on a public immutable database and on the blockchain to ensure that data can be verified by anyone and cannot be manipulated, providing maximum transparency.

In addition, over-certification/issuance of credits is controlled using technology. This methodology has a limit of 60,000 tons of carbon credits within a 12-month period. If the limit is reached at

60,000 tons, additional credits are blocked from being issued, and the Recycling (Composter) automatically becomes ineligible to continue as a registered project in the methodology.

Tokenized Carbon Credits (TCCs) have a specific utility—to serve as proof of ownership over reduced methane emissions at landfills by the work of composting organic waste once the credit (token) is retired. When the token is retired on the public blockchain, it becomes technically untransferable, and the holder is forever identified as the owner of that specific environmental claim.

Carrot communicates to supply chain participants (the Waste Generator, Haulers, Processors or Recyclers) through its Terms & Conditions of Use that participants can only claim the reduced greenhouse gas emissions gains that were realized through their participation. Participants cannot claim any offset, as those rights are transferred to the holder of the retired Tokenized Carbon Credit (TCC). Participants and holders of retired TCCs also CANNOT claim the recycling benefits and co-benefits associated with the MassID as these rights are reserved for holders of the Tokenized Recycling Credit (TRC).

If Waste Generators are found to be claiming offsetting, if TCC holders are claiming recycling co-benefits, or if TRC holders are claiming methane emissions reduction, they will be [penalized, suspended or potentially excluded](#) from participating in the methodology. Again, if TCC owners are found to be accounting for the offsetting of recycling and/or related co-benefits, they will be prevented from buying credits in the future for a period of time. TCC owners who wish to claim waste offsetting and the co-benefits associated with it must separately take ownership of a TRC.

While the same MassID may generate two separate credits, a TCC and a TRC, each has its methodology for verification, measurement of environmental gain, and issuance, designed to address two very different utilities. TCCs are utilized for contributions in reducing greenhouse gas emissions, while TRCs are utilized for individual waste offsetting or complying with Extended Producer Responsibility mandates designed for producers of waste to help invest in recycling.

This methodology cannot guarantee that its participants are not involved in the sale of other carbon credits elsewhere associated with the specific waste mass being tracked; however, every participant vouches not to do so as part of Carrot's Terms & Conditions and their involvement in this methodology. If such activities are discovered, the participant will be penalized, along with, potentially, all of those who are associated with the bad actor. (For more information, see the sections on [Bad Actors, Self-Policing, and Proof-of-Authority](#) and [Penalties & Suspensions](#)).

3.4.3 Participant Verification

Processors and Recyclers must be accredited by Carrot before participating in this methodology. As part of the accreditation process, an audit is conducted by an independent third party. An auditor's guide is provided to ensure all audits meet minimal requirements of this methodology. The service cost related to an audit may be covered by Carrot in the first instance to eliminate cost objections and remove financial barriers to onboarding the project, but the following audits must be covered by the candidate. This procedure ensures that the auditor is acting

independently of Carrot and is objective in its assessment. Auditors do not earn a percentage of credit rewards and have no economic incentives to approve projects or credits.

Auditors must be accredited by Carrot to ensure they have the capacity to perform auditing work in accordance with this methodology. Auditors are not paid by Carrot to preserve impartiality, with the exception of a first audit conducted for the first accreditation of a project, when necessary.

Carrot's Network Integrators (INTs) must be accredited by Carrot to ensure minimum data privacy, security and quality are met. Accreditation of Network Integrators is conducted by Carrot given that it has the deepest knowledge relating to platform integration and interests are aligned in ensuring the highest data quality possible.

Non-Government Organizations receiving rewards must also be accredited. While an audit of an NGO can initially be conducted by the Carrot team, it should be transferred to a third party as quickly as possible and must occur within 3 years of the 1st version of this methodology being ratified.

All Participants are KYC'd (Know Your Customer), including Waste Generators and BOLD CARBON (CH₄) Credit Buyers as part of the [Participation Requirements](#).

3.4.4 Data Verification

Carrot's engineering team verifies the data structure of supply chain and recycling records submitted to it by integrators (INTs) in advance of approval for data submission.

Auditing scripts using code are run to verify mass supply chain data and environmental compliance with this methodology to ensure high integrity as part of Carrot's digital Measurement, Verification, and Reporting (dMRV) process.

Data verification models will improve over time and will help build confidence in the Carrot Network.

More information can be found in the [Monitoring & Measuring Mass](#) section.

3.5 Entry into force

The date of entry into force of this methodology is Jan 1, 2024.

4. NORMATIVE REFERENCES

- AMS-III.D: Methane recovery in animal manure management systems
- AMS-III.E: Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment
- AMS-III.G: Landfill methane recovery
- AMS-III.H: Methane recovery in wastewater treatment
- AMS-III.AO: Methane recovery through controlled anaerobic digestion
- CDM TOOL 01: Methodological tool "Tool for the demonstration and assessment of additionality"
- CDM TOOL 02: Methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality"
- CDM TOOL 03: Methodological tool "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion"
- CDM TOOL 04: Methodological tool "Emissions from solid waste disposal sites"
- CDM TOOL 05: Methodological tool "Baseline, project, and/or leakage emissions from electricity consumption and monitoring of electricity generation"
- CDM TOOL 13: Methodological tool "Project and leakage emissions from composting"
- ACM0001: Flaring or use of landfill gas
- ACM0022: Alternative waste treatment processes
- IPCC 2006, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 3: Solid Waste Disposal
- ARS Synthesis Report: Climate Change: 2023, IPCC. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 8, Anthropogenic and Natural Radiative Forcing.

4.1 Additional References

- World Bank, [What a Waste 2.0](#) report
- IPCC, [Sixth Assessment Report](#)
- Clean Air Task Force, [IPCC's Assessment Report highlights the urgency of sharp reductions in methane](#)
- Burrows, Leah., [EPA Underestimates Methane Emissions from Landfills, Urban Areas](#), 2024.

- Olczak, Piebalgs, Balcombe, [A global review of methane policies reveals that only 13% of emissions are covered with unclear effectiveness](#)

5. PARTICIPATION REQUIREMENTS

Individuals and companies wishing to participate in the BOLD methodology must meet the participation requirements set below. Additional information will be required based on Participant roles identified in the Accreditation process and throughout this document.

Public and quasi-public entities are not eligible to participate in this methodology at this time.

Carrot Fndn may issue new requirements at any time, and updates will be published to the Carrot website under [whitepaper/Carrot methodologies](#). Participants wishing to comply with the new role requirements will need to update their information within a determined period.

The implementation of activities required for participation in the BOLD methodology must not lead to the violation of any applicable local law, statute, or regulation, regardless of whether or not they are enforced.

Failure to comply with the requirements and the general spirit of the Carrot Network may result in immediate disqualification from the BOLD methodology and exclusion from the Carrot Network altogether.

A composting project qualifies as small-scale if it meets the following requirements:

1. At no point can the annual reduction exceed the limit of 60,000 metric tons of CO₂e.
2. The activities of waste collection and distribution of compost occur near the composting facility, and all hauling activities occurring outside of the 200 km project boundary, measured by radius, are identified and measured.

The verification of whether a project fits within the requirements of the AMS-III.F small-scale methodology and the cited requirements will be carried out using the data from the project description, which must include a list of all the waste received and the respective annual quantity (in tons) as well as the hauling activities occurring outside of the project boundary.

5.1 Carrot's Terms & Conditions

All participants in the BOLD methodology must accept the Carrot Fndn's Terms & Conditions (T&C). The following items contained within the T&C are highlighted for added clarity.

5.1.1 Know Your Customer (KYC)

In order to participate in the Carrot ecosystem and receive token rewards from the BOLD methodology, all Participants (Waste Generators, Haulers, Processors, Recyclers, and Credit Buyers) will need to provide individual identification information, which include:

- full name,
- mobile number,
- birthdate,
- email address,
- residential address,
- document showing proof of residential address,
- provide all nationalities,
- show government ID for each nationality,
- share documents showing proof of government ID, including proof of possession, such as a photo of the individual holding the ID.

In the case of a company, the legal representative must provide, in addition to their individual identification, the following information:

1. documents showing proof of legal representation,
2. a corporate email,
3. the legal name of the corporation,
4. Tax ID of the company,
5. a document demonstrating proof of tax identification as well as any additional information that the Foundation may legitimately request occasionally to complete the Foundation's examination ("KYC-Check").

5.1.2 Composting Facility Eligibility

The aerobic and thermophilic organic waste composting projects that apply this methodology must demonstrate, through the calculation of annual avoided emissions, that:

- a. The composting facility did not exceed the limit of 60 thousand metric tons of annual CO₂e emissions reduction within the prior year of accreditation or any period after that.
- b. Waste collection and final product (compost) delivery occur largely within a 200 km radius (project boundary.) All hauling activities that occur outside the project boundary are identified, and the distance traveled is measured.
- c. The organic waste composting unit only receives segregated material, becoming ineligible if it receives municipal solid waste (MSW) that is not segregated at source, for example, waste from municipal household collection.
- d. The implementation of activities required for participation in this methodology does not lead to the violation of any applicable local law, statute, or regulation, regardless of whether or not they are enforced.

The company will not be eligible if it is being prosecuted for:

- a. Slave labor

- b. Environmental crime
- c. Non-compliance with the conditions of the Environmental Operating License and/or the Public Prosecutor's Office's Conduct Adjustment Agreement.

Types of waste pre-characterized by CDM TOOL04 that will be considered:

- a. Organic fraction of MSW, such as food waste, segregated at the source. Referred to as Food Waste by CDM TOOL04.
- b. Household or commercial food waste, or waste from industrial complexes. Referred to as Food, food waste, beverages and tobacco (other than sludge) by CDM TOOL04.
- c. Urban pruning, of public or private origin, such as tree pruning and lawn mowing. Referred to as Garden, yard and park waste by CDM TOOL04.
- d. Sludge from sewage treatment plants, or biosolids. Referred to as Domestic sludge by CDM TOOL04.
- e. Industrial sludge from treatment processes, or biosolids. Referred to as Industrial sludge by CDM TOOL04.
- f. Textile waste. Referred to as Textiles by CDM TOOL04.
- g. Organic agricultural waste, e.g. fruit peelings, branches, straw, bagasse. Referred to as Empty Fruit Bunches by CDM TOOL04.

Waste without pre-characterization by CDM TOOL04 must have the fraction of Degradable Organic Carbon (referred to as DOC in CDM TOOL04) determined by the mass loss method in a muffle furnace at 550°C (determination of volatile solids or organic matter, g/g) or elemental analyzer for organic carbon (determination of carbon content, %). Types of waste not pre-defined by CDM TOOL04 include:

- a. Other organic agricultural waste, e.g., vegetable scraps.
- b. Animal confinement waste, manure.
- c. Agro-industrial organic waste, e.g., waste from wineries, fruit juice factories, flour processing, filter cake.
- d. Organic waste from breweries, such as malt bagasse.

Waste not listed above should follow the DOC (Degradable Organic Carbon) determination guidelines in item 5 above.

Failure to comply with the requirements and general spirit of the Carrot Protocol may result in the immediate disqualification of this methodology and total exclusion from the Carrot Protocol.

5.1.3 Project Description

Composting facilities must provide the following relevant information for describing their project:

- a. Type and amount of organic waste composted in the prior year, properties of the final product (organic compost), list of agencies with regulatory oversight and any licenses, and radius (km) of the consumer market.
- b. Annual processing capacity of waste, production of compost, and compost sold measured in metric tons.

- c. List of hauling activities that occurred outside of the 200 km project boundary, measured by radius, and distance traveled for each activity.
- d. Photos of the composting unit should include the total area (in square meters) occupied by the project, details of the built-up area, and descriptions of the operating areas for the composting process, which are subdivided into waste drop-off area, processing, maturing, bagging, and dispatch, as well as information on covered and uncovered areas, leachate collection points, and types of flooring.
- e. Map or sketch of the property, including geolocation, showing the location of each processing and operation unit.
- f. Composting method and technology used, including process monitoring protocols (temperature, humidity, aeration, etc.).
- g. Identify whether the composting unit receives specialized national or international consultancy and/or technical assistance regarding the method and technologies used in the composting process.
- h. Equipment used in the process, including vehicles.
- i. Describe the quality control of the final product.
- j. Describe the protocol for controlling the quantities of waste received and the final product sold.
- k. Indicate the contingency plan for failures or interruptions in the composting process or impediments to the commercialization of the final product that would result in the need for reprocessing or sending the material to third parties and, in particular, to landfills.
- l. Report the average composting cycle for the facility in days. The composting cycle is understood to be from the time that the process begins (e.g., mixing the waste and forming the windrows) to the completion of the maturation date of the compost and its sieving prior to its sale.
- m. Please state which certifications the composting plant has in force, for example: ISO14001; ISO45001, ISO9001, among others not mentioned.

5.1.4 Money Laundering and Combating the Financing of Terrorism

Blockchain is a transformative technology. Unfortunately, there have been instances where Bad Actors have used such solutions to launder money and finance terrorism.

For this reason, Participants in the BOLD methodology and the Carrot Network must understand that partaking in money laundering or the financing of terrorist activities on or off of the Carrot Network will not be tolerated. Any evidence of such activities may lead to immediate and permanent removal from the platform (see [Penalties & Suspensions](#) section). In addition, Carrot Fndn will cooperate fully with authorities investigating money laundering activities as well as assist with any work required for Combating the Financing of Terrorism (CFT) that may involve the Carrot Network. Participants need to acknowledge and accept such audits as identified in the Carrot Network's Terms and Conditions.

5.1.5 Compliance with Local Digital Asset Laws

Digital asset legislation is at different stages of development around the world. All Participants must understand local digital asset laws and ensure that they are meeting legal requirements. To understand these risks, please review the following:

1. Carrot will use smart contracts to mint Non-Fungible Tokens (NFTs) that will contain GasIDs that represent the verified GHG emission reduction caused by the recycling activity of specific MassIDs at an accredited recycling center.
2. Stablecoins and/or Central Bank Digital Currencies (CBDCs) will be utilized as the purchasing vehicle of NFTs for carbon credit buyers (Note: while a credit buyer may make a purchase directly with the foundation without directly interacting with stablecoins or CBDCs, it must be clear that digital assets will be the mechanism through which rewards are distributed to recycling contributors);
3. Stable Coins and/or CBDCs will be distributed to Participants who have provided their digital wallets for receiving the proceeds from their contributions within successful supply chains;
4. All Participants who receive stablecoins will be KYC'd;
5. Carrot Fndn does not provide custody of wallets or assets;
6. Each Participant is responsible for providing their wallet address, managing their digital assets, and any keys related to accessing their wallets for retrieving their rewards.
7. Participants have 6 months from the first credit sale to claim their rewards. Failure to claim rewards or to instruct the Carrot Fndn on how to proceed with the rewards within the allocated period will cause an automatic distribution of the rewards to the Carrot Fndn so that the rewards are not lost and can be utilized to further the purpose of the foundation.

The Carrot Fndn uses blockchain technology to reduce costs related to providing transparency in the distribution of rewards and as a mechanism to scale the use of the protocol and its methodologies around the world so that it can deliver environmental, social, and economic impact as quickly as possible.

5.1.6 Commitment to Proper Sorting and Recycling Participation

All Participants commit to pursuing high-performance recycling practices, which may involve contracting with professional recycling and composting service providers, purchasing adequate equipment, establishing internal processes for sorting and storing waste properly, training employees, educating customers, hiring consultants, paying for logistics, and using waste management software for waste tracking and recycling certification, among others.

Each participant is responsible for doing their part in properly sorting, storing, hauling, and composting organic waste and, where necessary, working with partners to educate, improve practices, and collaborate on keeping processes clean, efficient, effective, and low-cost.

5.1.7 Commitment to Data Quality and Self-Policing

Data quality is of the utmost importance.

Diligence with proper sorting, measuring (weighing), identifying waste types, and logging data regarding shipment, hauling, receipt, weighing, and auditing, among other activities, is necessary to effectively participate in this and any other of Carrot's methodologies.

Participants also recognize their role in reporting any data anomalies they observe to the Carrot Network so that proper orientation can be given and a high standard of data quality can be maintained.

Participants using reliable and robust services for documenting procedures have a much greater chance of successfully passing Carrot's audits.

Any data error must be reported as soon as possible in order to limit or avoid penalization.

5.1.8 Compliance with labor laws and work conditions

Participants must comply with all local, national, and international labor laws. We bring special attention to the following:

Participants must conduct their business activities in accordance with the International Labor Office's (ILO's) Declaration on Fundamental Principles and Rights at Work¹³ concerning fundamental rights, namely, freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labor; the effective abolition of child labor; the elimination of discrimination in respect of employment and occupation; and a safe and healthy working environment.

Participants are committed to implementing and improving occupational health safety and management systems aimed at minimizing work-related risks, hazards, and fatalities, oriented by the International Labour Office (ILO) guidelines on occupational safety and health management systems¹⁴ and the ILO training manual WARM¹⁵, Work Adjustment for Recycling and Managing Waste.

Participants adhere to the United Nations Convention on the Rights of the Child¹⁶. The Convention distinguishes childhood from adulthood, which lasts until 18 years of age. Childhood is considered a special, protected period in a person's life, and children must be allowed to grow, learn, play, develop, and flourish with dignity. For children participating in young apprentice

¹³ International Labour Office, ILO Declaration on Fundamental Principles and Rights at Work. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/normativeinstrument/wcms_716594.pdf

¹⁴ ILO-OSH, 2001. Guidelines on occupational safety and health management systems. INTERNATIONAL LABOUR OFFICE, Geneva. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/normativeinstrument/wcms_107727.pdf

¹⁵ International Labour Office, ILO training manual WARM, Work Adjustment for Recycling and Managing Waste. Available at: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/publication/wcms_126981.pdf

¹⁶ UNICEF: [United Nations Convention on the Rights of the Child](#).

programs, these must be in compliance with local laws and will be verified during the auditing process.

5.1.9 Compliance with Data Privacy and Confidentiality

All Participants, in particular the Carrot Integrators (INTs), must comply with local and international data privacy laws to ensure the privacy of all participants is protected.

Attention should be given to laws such as the EU's General Data Protection Regulation (GDPR)¹⁷, The Council of Europe's Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data¹⁸, the California Consumer Privacy Act (CCPA)¹⁹ and Brazil's General Law for Protection of Personal Data (LGPD)²⁰, to name a few.

5.1.10 Commitment to Confidentiality

All Participants, in particular the Carrot Integrators (INTs), must commit to protecting the confidentiality of the business activities of network Participants in order to preserve a healthy business environment and the collaborative spirit of working together to optimize waste recovery and minimize pollution.

5.1.11 Transfer of Data Rights

Participants understand that they transfer all rights to the data submitted to the Carrot Network to the Carrot Fndn. This occurs when the Participant signs Carrots [Terms & Conditions](#). Participants also understand that Carrot Fndn seeks to sell credits on a best-efforts basis but that it has no obligation to do so.

Participants recognize that they cannot request that other certification entities issue recycling, carbon, or other environmental credits relating to the data that is submitted, as this would constitute double-counting and possibly double profiting. Such activities will result in immediate suspension and likely permanent removal from participation in this methodology or any other methodologies utilized by the Carrot Network. For more information, see the section on [Penalties & Suspensions](#).

5.2 Carrot's Token Sale Agreement

Buyers of credits (tokens) and receivers of rewards must accept the terms set in Carrot Fndn's Token Sale Agreement.

¹⁷ EU: [General Data Protection Regulation](#)

¹⁸ ETS No 108, Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, Council of Europe (CoE). Available at: <https://rm.coe.int/1680078b37>

¹⁹ California Privacy Protection Agency: [The California Privacy Rights Act of 2020](#)

²⁰ LEI Nº 13.709, DE 14 DE AGOSTO DE 2018. BRASIL, Lei Geral de Proteção de Dados Pessoais (LGPD). Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm

We expect BOLD CARBON (CH₄) Buyers to understand the early stages of the development of the Carrot Network and the associated risks before making a purchase.

6. BASELINE

6.1 Project Boundaries

BOLD Carbon (CH₄) carries a project boundary of 200 km measured by radius from the composting facility. The project boundary contains all of the activities, from organic waste pick-up to compost delivery. Hauling activities that occur outside of the project boundary must be individually identified and measured. The 200-kilometer radius adheres to the project boundary established for composting work for the issuance of carbon credits under UNFCCC – AMS-III.F.: [Avoidance of methane emissions through composting --- Version 12.0](#).

Waste pickups and compost deliveries that exceed the 200 km radius must be reported individually by the composting facility by filling out the Project Boundary spreadsheet at the time of Accreditation and verified by the auditor. The spreadsheet includes information on waste pickup (Figure 1) and compost distribution (Figure 2) compiled for the 12 consecutive months within a period of no more than 15 months prior to the audit date.

Figure 1: Waste pickup beyond 200km

Suppliers	Waste Supplier Name	Total Waste (Ton/yr)	Trips per year	Distance to Recycler measured by radius (km)	Dist. Beyond Project Boundary (>200 km)	Km per Year (Beyond Project Boundary)
1	Client 1	20	12	210	10	120
2	Client 2	40	6	250	50	300
3	Client 3	40	2	400	200	400
4	Client 4	80	1	300	100	100
5	Client 5	80	10	250	50	500
6	Client 6	100	6	350	150	900
7	Client 7	300	8	230	30	240
8	Client 8	20	5	330	130	650
9	Client 9	50	12	530	330	3960
10	Client 10	50	3	210	10	30
11	Client 11	100	8	600	400	3200
12	Client 12	60	7	340	140	980
13	Client 13	60	3	280	80	240
		1,000				11,620

Figure 2: Compost delivered beyond 200km

Buyers	Compost Buyer Name	Total Compost (Ton/yr)	Trips per year	Distance to Delivery Point measured by radius (km)	Dist. Beyond Project Boundary (>200 km)	Km per Year (Beyond Project Boundary)
1	Client 1	20	12	210	10	120
2	Client 2	40	6	250	50	300
3	Client 3	40	2	400	200	400
4	Client 4	80	1	300	100	100
5	Client 5	80	10	250	50	500
6	Client 6	100	6	350	150	900
7	Client 7	300	8	230	30	240
8	Client 8	20	5	330	130	650
9	Client 9	50	12	530	330	3960
10	Client 10	50	3	210	10	30
11	Client 11	100	8	600	400	3200
12	Client 12	60	7	340	140	980
13	Client 13	60	3	280	80	240
		1,000				11,620

See: [link to spreadsheet](#)

6.2 Baseline Selection

The emissions baseline represents the amount of GHG emissions that are typically generated by a “business as usual” scenario. The composting facility compares its emissions to one of the following scenarios:

1. Landfills with flaring of methane gas (and/or capture of biogas)
2. Landfills without flaring of methane gas
3. Open-air dump

[Note: The disposal of organic resources in each of the above scenarios should be considered unacceptable, given the methane emissions that are generated when they are buried, as well as the opportunity that is lost with composting, where nutrient-rich compost can be generated to restore soil health from currently highly degraded conditions.]

As evidenced in the graph below, composting yields significantly lower GHG emissions than any of the baseline scenarios where decomposition of organic waste occurs anaerobically in landfills.

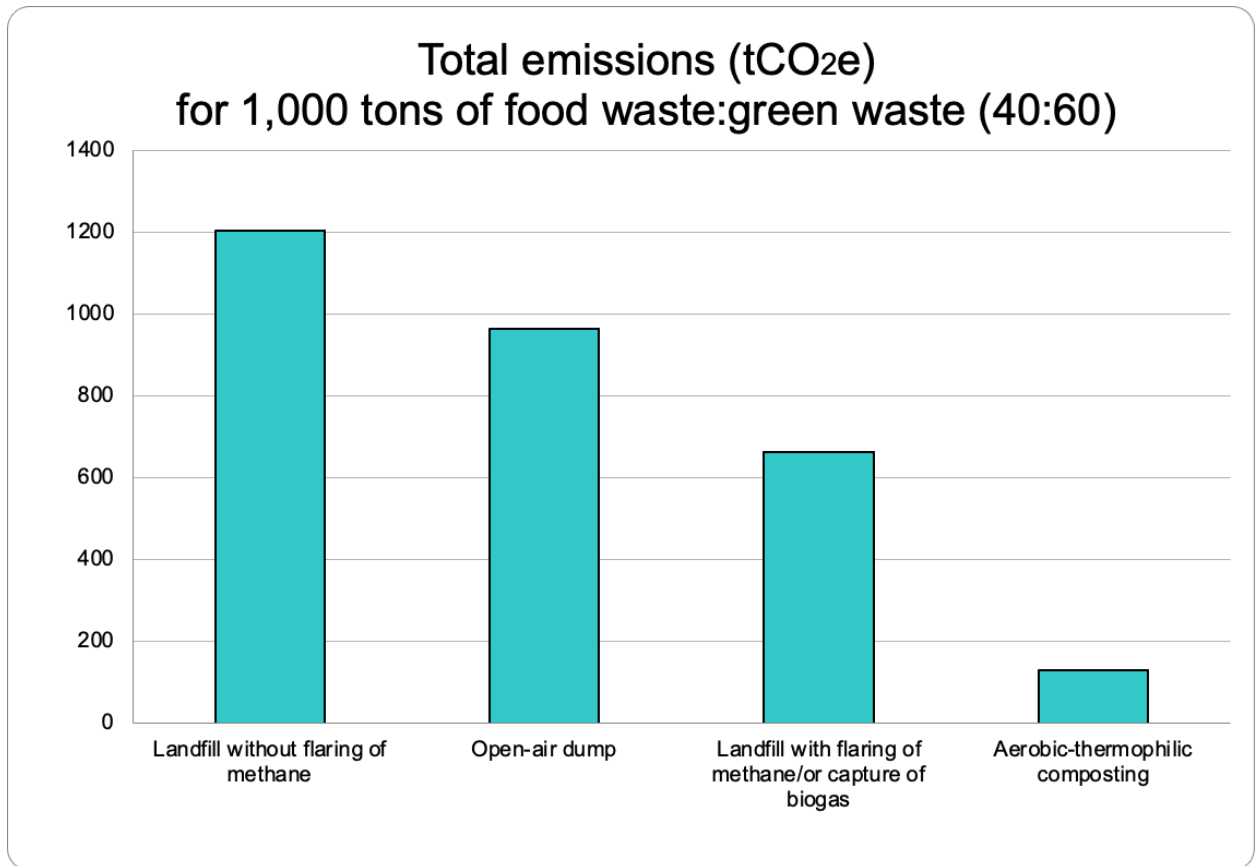


Figure 3 illustrates the comparison of emission scenarios among three baseline waste disposal methods and the composting scenario.

The most significant GHG reduction gains occur when compared to landfills that do not conduct flaring (burning) or capture of methane gas. Unfortunately, even landfills with flaring do not produce adequate methane emissions reductions, where on average less than 50% of the methane emitted is successfully captured. This fact demonstrates that advancements in waste management to limit environmental contamination, such as the adoption of highly sealed landfills, have the unintended consequence of actually increasing greenhouse gas emissions being generated if flaring is not introduced. The circular economy (i.e., composting) is a far superior solution.

The composting facility must identify the baseline scenarios for each of the waste types that it receives and composts, filling out the following form and updating it each year during the audit process:

Composted Waste Types

Recycler:				
Recycler Address:				ZIP:
City:		State:		Country:
Annual Precipitation of the Region:			Climate Type (tropical, arid, temperate, or polar):	
Rapidly biodegradable waste (putrescible)*	Weight of composted waste taken to composting facility in tons/year	Typical form of treatment (baseline disposal)	Name of the specific disposal facility used for baseline calculation	Address of the specific disposal facility used for baseline calculation
1.		e.g. landfill		
2.				
3.				
4.				
5.				
...				

Slowly biodegradable waste (structural)*	Weight of composted waste taken to composting facility tons/year	Typical form of treatment (baseline disposal)	Name of the specific disposal facility used for baseline calculation	Address of the specific disposal facility used for baseline calculation
1.				
2.				
3.				
4.				
5.				
...				

Figure 4: Composted Waste Types.

A downloadable version of the spreadsheet is available [here](#).

*List all materials utilized for windrow composting.

The Recycler is required to present the different waste types within each waste type category (rapid and slow biodegradable) for 12 consecutive months within a 15-month period prior to the audit, and auditors must verify the amounts and mixtures and confirm that waste types match the correct categories.

Each Network Integrator will need to submit waste type data in accordance with the given country's conversion table available in the [Appendix](#).

Eligible organic Waste Type Classes, as defined by [CDM TOOL04](#) include:

- Wood and wood products
- Pulp, paper and cardboard (other than sludge)
- Food, food waste, beverages and tobacco (other than sludge)
- Textiles
- Garden, yard and park waste
- Empty fruit bunches (EFB)
- Industrial sludge
- Domestic sludge
- Other Organic (more information in the [Standardized Parameters](#) section.)

All organic materials utilized in the compost heap, including heap structuring and/or carbon-providing aggregates, need to be included in the table above along with their respective baselines. If materials do not typically go to one of the methane-generating baselines listed above, then they cannot be factored into the avoided emissions. However, they will still count toward total project emissions (PEy) and material composted amounts (Qy).

6.2.1 Baseline Selection & Approval Criteria

1. The Recycler must specify the baseline waste treatment for the organic waste, the distance to the site measured in kilometers, along with corroborating materials (official landfill specifications, documents, or declarations) to support the proper baseline classification.
2. If more than one baseline is available, document the reason for a specific disposal choice as a baseline and include the difference in costs (tipping fees and hauling) between the two or more options. The auditor must be able to confirm the baseline selection as the most likely location where the organic waste would be sent if the composting operation were halted.
3. If more than one baseline treatment is available and it is reasonable that either could be utilized, select the more conservative emissions-generating option. For example, between a landfill and a landfill with flaring, select the landfill with flaring.

Emissions generation by disposal treatment, from fewest emissions to highest emissions, are:

1. Landfill with flaring or power generation,
2. Dumps,
3. Landfill without flaring or power generation.

[Note: Transportation emissions within the 200-km radius will not be considered for additional GHG emissions reductions because the methodology considers them to be equivalent to each of the baselines available.]

Baseline emissions will be calculated utilizing the following methodologies:

METHODOLOGIES FOR CALCULATING GHG EMISSIONS	
Treatment Method	Methodology
Landfill with power generation derived from methane	CDM TOOL4 Methodological tool: Emissions from solid waste disposal sites, v 08.1 / AMS-III.G Landfill methane recovery
Landfill <u>with</u> Methane Flaring	
Landfill <u>without</u> Methane Flaring	
Landfill ("dump")	
Other (specify)	Specified by the composter

6.3. Additionality

6.3.1. Procedures to Determine Additionality

The BOLD Carbon (CH₄)-SSC methodology establishes that **quantified methane emission reductions** are considered **additional** when they result from the **verifiable diversion of**

source-separated organic waste from landfills, dumpsites, uncontrolled decomposition or incineration plants to eligible composting infrastructure.

This determination is grounded in a **geographical performance benchmark**: if a region (state) has not yet achieved a **90% diversion rate** of organic waste to biological treatment (composting and anaerobic digestion)—aligned with the **Zero Waste International Alliance (ZWIA)** performance target—all composting activity meeting the requirements of this methodology is presumed additional. This provides a **conservative, standardized threshold** for additionality that reflects real-world performance, not theoretical or unenforced policy mandates.

Common Practice and Structural System Failure

Despite increasing global attention to waste sector emissions, **biological treatment of organic waste is not common practice**. In most countries, **less than 10% of organic waste** is diverted through biological treatment pathways. In many emerging markets, like Brazil, the rate is less than 1%, despite the resources being 100% recyclable.

Even where policies mandate composting or source separation, they are rarely enforced—and in practice, landfilling or illegal dumping remains the default. In this context, **relying solely on legal mandates or project-level tests fails to capture systemic failure**.

The 90% diversion threshold serves as a conservative screen: it ensures that crediting is limited to geographies where biological treatment remains **insufficient, uncommon, under-incentivized, and systemically constrained**. Projects operating in such jurisdictions are considered **necessary interventions**, and the methane reductions they generate are treated as fully additional.

Barriers Supporting Traditional Additionality Assessment

This geographical performance test is **reinforced** by a range of persistent, well-documented barriers that align with traditional tests used by:

- ICVCM Core Carbon Principles.
- ICAO's CORSIA,
- UNFCCC Clean Development Mechanism (CDM)

1. Financial and Market Barriers

- a. Composting is costlier than landfilling or dumping and offers minimal revenue from compost sales.

- b. Tipping fees are often subsidized or nonexistent for landfills, creating unfair price competition.
- c. Compost markets are underdeveloped, unregulated, or nonexistent in many regions.

2. Institutional and Policy Barriers

- a. Even where composting is legally required, enforcement mechanisms are weak or nonexistent.
- b. Municipal systems often lack the capacity, budget, or infrastructure to enforce diversion or penalize non-compliance.
- c. Policies may exist on paper but fail to produce material diversion at scale.

3. Technological and Operational Barriers

- a. Composting requires specialized infrastructure, source-separated feedstock, trained operators, and logistics coordination.
- b. Many regions lack the ability to consistently deliver clean, uncontaminated organic streams.
- c. Without quality equipment and processes, facility operators face difficulties in odor control, leachate management, and permit compliance.

4. Implementation Risks

- a. Composting projects often fail to secure investment without upfront forward credit commitments
- b. Market volatility, poor offtake agreements, and low compost demand can collapse otherwise promising projects.

Conclusion: Waste Diversion as the Basis of Additionality

Under this methodology, **methane reductions at landfills are considered additional because the waste diversion itself is additional**. Composting is not yet the norm in any region that fails to meet the 90% diversion benchmark—and every verified ton of organic waste redirected from landfill to composting generates a climate benefit that would not otherwise occur.

The proceeds from credit sales distributed across the supply chain contributors are key to changing incentives to drive collaboration, investment, and payment for high-performance waste and carbon reduction work.

Therefore, the BOLD Carbon (CH₄)-SSC methodology:

- Meets and exceeds traditional additionality criteria,
- Aligns with ICVCM and CORSIA expectations,
- And provides a conservative, auditable, and scalable framework for crediting real climate gains.

Additionality Flowchart Diagram

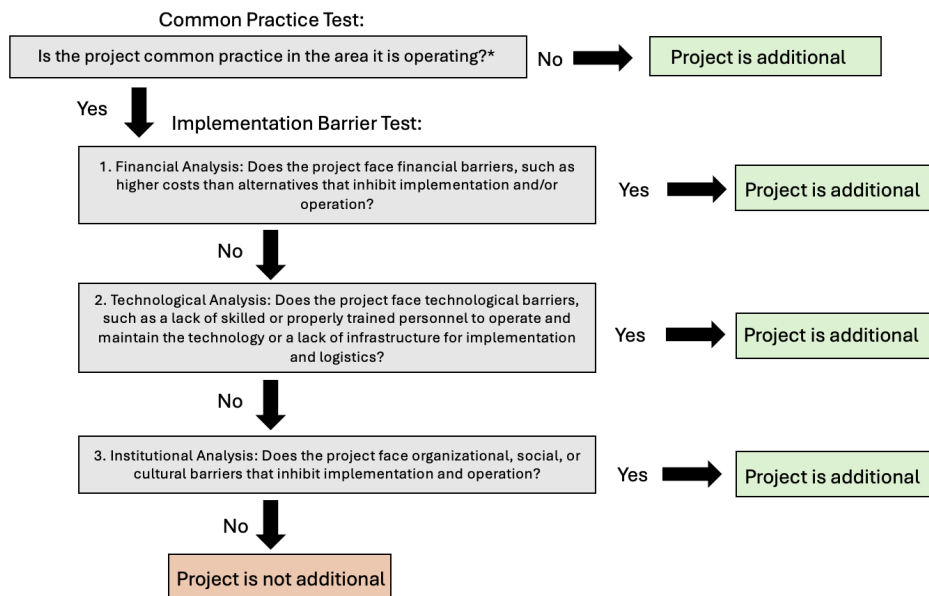


Figure 5: Additionality flowchart to help determine if a project is or is not additional.

*Where common practice is defined as meeting the proper biological treatment of more than 90% of organic waste produced in the jurisdiction, measured in weight, thereby meeting the Zero Waste Goal.

6.3.2 Composting Projects Eligibility Flowchart

The following Eligibility Flowchart summarizes the screening steps required to determine whether a composting project qualifies under the BOLD Carbon (CH₄)-SSC methodology.

BOLD CARBON (CH₄) Eligibility Tree
Does the composting project meet the additionality requirements outlined in Section 6.3?

YES		NO	
Has the Composter been audited and approved by a local composting expert and successfully achieved accreditation by Carrot to participate in the BOLD-C methodology?		NOT ELIGIBLE FOR CARROT'S BOLD-C CREDIT	
YES		NO	
Do the CO ₂ equivalent emissions reduced by the composting facility NOT exceed the small-scale limit of 60 kt (60 thousand metric tons) in the eligibility period? Are all of the waste collection points and compost delivery locations that occur beyond the 200 km project boundary, measured by radius from the composting facility, identified and measured?		The project needs to complete auditing and accreditation process	
YES	NO		
The composting facility only receives properly sorted organic waste material. (i.e., The composting facility does not receive Municipal Solid Waste that is not sorted at the source.)	NOT ELIGIBLE FOR CARROT'S BOLD-C CREDIT		
YES	NO		
ELIGIBLE FOR CARROT'S BOLD-C Credit	NOT ELIGIBLE FOR CARROT'S BOLD-C CREDIT		

Failure to comply with the requirements and the general spirit of the Carrot Network may result in immediate disqualification from this methodology and total exclusion from the Carrot Network as presented in the [Penalties & Suspensions](#) section.

6.4 Leakage

Emission leakages for composting may occur in the case of improper storage or disposal of the end product, resulting in anaerobic decomposition. These will be calculated in accordance with item 7.5: Calculation of Leaked Emissions.

Leaked Emissions

Type	Applicable Methodology
Storage or anaerobic disposal of the final product	CDM TOOL13 v.02.0 Project and leakage emissions from composting

6.5 Permanence and Reversal Risks

Permanence refers to the longevity of GHG emission reductions or removals, while reversal risk pertains to factors that could negate a project's atmospheric benefits, making them non-permanent.

6.5.1 Permanence Risks

For BOLD CARBON (CH₄) projects, impermanence is not a concern because composting prevents methane emissions from forming in the first place, rather than relying on long-term carbon storage, which carries a risk of re-release. Unlike sequestration-based projects, where carbon stored in forests or soils can be reversed due to land-use changes, wildfires, or degradation, composting ensures permanent methane avoidance by diverting organic waste before anaerobic decomposition can occur.

6.5.2 Reversal Risks

Reversal risks for BOLD CARBON (CH₄) projects are minimal due to the inherent nature of the operation, where credits are issued only after activity verification is conducted using Carrot's digital monitoring, measurement, reporting and verification (dMRV) system. The use of real-time tracking, dMRV, and biannual recycler accreditation ensures that only verified methane avoidance credits are issued.

However, operational risks still exist, including:

- Facility Damage or Destruction: Fires or extreme weather events could disrupt composting operations.
- Financial Constraints: Composting may remain more expensive than landfilling even with the carbon credit rewards, and economic hardship could force operators to scale back or shut down, leading to waste being landfilled instead.

To mitigate these risks, Carrot requires all participating recyclers to commit biannually to meeting the certification guidelines. This process includes third-party audits, compliance checks, and verification of composting activities to ensure continued eligibility under the BOLD CARBON (CH₄) methodology.

6.5.3 No Buffer or Insurance Requirement

Given the fundamental nature of methane prevention through composting, Carrot does not require a buffer pool or insurance on credits, as commonly seen in carbon sequestration projects. Unlike forestry or soil-based initiatives—where stored carbon can be re-released due to environmental or human factors—BOLD CARBON (CH₄) credits represent emissions that were never generated in the first place. Since methane prevention occurs quickly and is irreversible, there is no risk of re-emission, eliminating the need for additional risk mitigation measures such as credit reserves or insurance pools.

To further safeguard credit integrity, BOLD CARBON (CH₄) relies on rigorous verification protocols, third-party audits, and continuous digital monitoring, ensuring that all issued credits are backed by verifiable methane avoidance outcomes.

If implementing a buffer or insurance requirement becomes necessary in future revisions, the application of the methodology and its verifying technology will have given us useful information about how to best implement them.

7. QUANTIFYING AVOIDED EMISSIONS

The emissions prevented by the composting project are measured in tons of CO₂ equivalents and calculated as the difference between the baseline emissions and the emissions from the composting project, including any leakages, as detailed below.

$$ER_y = BE_y - (PE_y + LE_y)$$

ER_y = Emission reductions or emissions avoided in the year y , in (tCO₂e)

BE_y = Baseline emissions in the year y , in (tCO₂e)

PE_y = Emissions from the composting project in the year y , in (tCO₂e)

LE_y = Leaked emissions in the year y , in (tCO₂e)

For more information, please refer to the original document AMS-III.F v.12.0 [Small-scale methodology: Avoidance of methane emissions through composting](#), item 6. Monitoring methodology, paragraph 29, equation

Composting emissions are calculated utilizing the amounts of each organic waste type that was verifiably composted.

7.1 Baseline Calculation (BE_y)

The baseline calculation is the amount of emissions in tCO₂ equivalent expected from the disposal of waste (BE_y) in landfills or dumps if the composting project did not exist.

7.1.1 STANDARD PROCEDURE

The standard procedure for calculating the baseline refers to equation 1, paragraph 16, page 6, CDM TOOL4 (*Methodological tool: Emissions from solid waste disposal sites*, v. 08.1).

$$BE_y = \varphi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \\ \times MCF_y \times \sum_{x=1}^y \sum_j (W_{j,x} \times DOC_j \times e^{-k_j \times (y-x)} \times (1 - e^{-k_j}))$$

The project must present the parameters that will be used to calculate the baseline, as shown below.

The parameter values used fall within two categories:

- Standardized fixed parameters
- Parameters monitored by the project

7.2 Standardized Parameters

Standardized Parameters*			
1.0	Correction factor considering model uncertainty*	$j_{default}$	
	1.1 Humid Climate		0,85
	1.2 Arid Climate		0,80
2.0	Global warming potential from methane gas	GWP_{CH_4}	28

3.0	Methane oxidation factor	OX	0,1
4.0	Fraction of methane in the SWDS gas (volume fraction)	F	0,5
5.0	Fraction of degradable organic carbon with effective potential within the landfill	DOC_f	0,5
6.0	Methane correction factor for anaerobic landfills*	MCF	
	6.1 Managed landfill *		1,0
	6.2 Semi-aerobic landfills (with air introduction).		0,5
	6.3 Waste dumps 5 meters or more deep, without proper management and engineering.		0,8
	6.4 Shallow waste dumps or waste piles without proper management and engineering.		0,4
7.0	Decay rate constant for waste by type (k_j)	k_j	see auxiliary table
8.0	Fraction of degradable organic carbon by waste type j	DOC_j	(% wet waste)
	8.1 Wood, wood products, straw		43
	8.2 Pulp, paper and cardboard (other than sludge)		40
	8.3 Food, food waste, beverages and tobacco (other than sludge)		15
	8.4 Textiles		24
	8.5 Garden, yard and park waste		20

	8.6 Inert waste (e.g., glass, plastic, metal)		0
	8.7 Others not classified above		see auxiliary box

*from CDM TOOL 4 version 08.1

Auxiliary Box for DOC _j *
For the following residual waste types, project participants may use or derive default values, as follows: (a) For empty fruit bunches (EFB), as their characteristics are similar to garden waste, the value for garden, yard and park waste in the table above may be used as a default (b) For industrial sludge, either a value of 9% (wet basis) may be used as a default, assuming an organic dry matter content of 35%, or alternatively, if the percentage of organic dry matter content is known, then the DOC value may be calculated as follows: $DOC_j (\% \text{ wet sludge}) = 9 \times (\% \text{ organic dry matter content} / 35)$; (c) For domestic sludge, either a value of 5% (wet basis) may be used as a default, assuming an organic dry matter content of 10%, or alternatively, if the percentage of organic dry matter content is known, then the DOC value may be calculated as follows: $DOC_j (\% \text{ wet sludge}) = 5 \times (\% \text{ organic dry matter content} / 10)$. OTHERS: If a waste type is not comparable to MSW and cannot clearly be described as a combination of waste types in the table above, or if a default value is unavailable, or if project participants opt to measure DOC_j, they should conduct an ignition loss test following EN 15169 or similar national/international standards. This measurement is only required once for each waste type <i>j</i> and the value determined for DOC_j remains valid during the crediting period.

*from CDM TOOL 4 version 08.1. Data/Parameter Table 6.

Additional data required to determine the decomposition rate k_j per type of waste.					
Residue type		Temperate Climate		Tropical Climate	
		Arid	Humid	Arid	Humid
Slow degradation	Paper, pulp, cardboard (excluding sludge), and textiles.	0,04	0,06	0,045	0,07

	Wood, wood products, straw.	0,02	0,03	0,025	0,035
Moderate Degradation	Pruning, grass cutting, organic waste (except food waste).	0,05	0,10	0,065	0,17
Fast Degradation	Food waste, sewage sludge, drinks, tobacco.	0,06	0,185	0,085	0,4

Temperate climate: average annual temperature < 20 °C; Dry when the ratio of average annual rainfall divided by annual evapotranspiration <1; Humid when >1.

Tropical climate: average annual temperature > 20°C; dry when the ratio of average annual rainfall < 1,000 mm; and humid when > 1,000 mm.

To confirm the climate data relating to the location of the waste disposal (e.g., Baseline landfill), INMET data should be accessed from the geographical location.

To calculate the Baseline, only two parameters should be monitored, as shown in the table below.

7.3 Baseline Calculation Parameters

Monitored Parameters			
7.0	Quantity of monthly waste, by type	w _m	See item 18
7.1	Fraction of methane collected and burned in the landfill.	f	Present data source*

The documentation utilized to confirm the amount of methane collected and flared in a landfill (f) may include:

- A contract, a technical specification, or legal requirements;
- History of reported data;

- c. Public information provided by the landfill manager;

The status of the landfill or project that controls methane emissions through flaring or energy use should be checked annually, provided by the recycler, and verified by the auditor during accreditation.

7.4 Project Emission Calculation (PE_y)

The Composting Project's emissions for the year are given by the equation:

$$PE_{comp, y} = PE_{EC, y} + PE_{FC, y} + PE_{CH_4} + PE_{N_2O} + PE_{RO, y}$$

where:

$PE_{comp, y}$ = Project emissions from composting in the year y (CO₂e/year)

$PE_{EC, y}$ = Project emissions from energy consumption

$PE_{FC, y}$ = Project emissions from fossil fuel consumption

PE_{CH_4} = Project methane emissions from composting

PE_{N_2O} = Project nitrous oxide emissions from composting

$PE_{RO, y}$ = Project methane emissions from the composting effluent

This equation is originally described in [CDM TOOL13 Project and leakage](#) to determine emissions from composting (6. Methodology procedure, Equation 1, p. 5).

The parameters for calculating emissions from the composting project are:

Monitored Parameters	
Quantity of composted residue (Q_y)	Aggregate annually; monitor daily. Metric tons (t/year)
Capacity of cargo vehicles ($CT_{t,y}$)	Aggregate annually; monitor daily. Metric tons (t/year)

Amount of waste composted per composting cycle(Q_c)	Measure the amount of waste used in a compost heap. Metric tons (t)
Quantity of effluent treated	Aggregate annually; monitor daily. Cubic meters (m ³ /year)
Amount of effluent recirculated (co-composted)	Aggregate annually; monitor daily. Cubic meters (m ³ /year)

Standardized Parameters		
SEC_{comp}	Electricity consumption per ton of composted waste (Q_y) (MWh/t)	0,01
EF_{FC}	Fossil fuel consumption per ton of composted waste (Q_y) (tCO ₂ e/ t)	0,0207
EF_{CH_4}	Methane emission factor per ton of composted waste (Q_y). (tCH ₄ e/ t)	0,002
EF_{N_2O}	Nitrous oxide emission factor per ton of composted waste (Q_y). (tCH ₄ e/ t)	0,0002
$B_{0,ww}$	Methane emission factor per m ³ of treated effluent (Q_y). (tCH ₄ / tCOD)	0,25
$MCF_{ww, treatment}$	Methane correction factor for the effluent treatment system	see auxiliary table

$B_{0,ww}$	Methane emission factor per m ³ of treated effluent (Q_y). (tCH ₄ /tCOD)	0,25
	Model correction factor for uncertainties in methane emissions from leachate (RO)	1,12
$DF_{COD,RO}$	Factor for COD rate in RO WW and treated effluent	0,02

AUXILIARY TABLE	
Type of effluent treatment, discharge system, or route	Standard value
Discharge into the ocean, lake, or river	0,1
Aerobic treatment*	0,0
Anaerobic treatment in reactors or digesters without methane recovery**	0.8
Shallow anaerobic settling ponds (<2 m)	0,2
Deep anaerobic settling ponds (>2 m)	0,8
Tank systems or septic tanks	0,5

*If the system is overloaded or poorly managed, as verified by an inspection, use a factor = 0.3.

**For anaerobic systems with methane burning or utilization, use factor = 0.0.

4. The parameters listed above will be used in the following equations (table below):

Calculated Item	Equation
-----------------	----------

$EC_{PJ,comp,y}$ Quantity of electric energy consumed (MWh/yr)	Equation 3, CDM TOOL13, v.02.0, paragraph 18, p. 6.
$PE_{FC,y}$ Project emissions associated with fossil fuel consumption (tCO₂/yr)	Equation 4, CDM TOOL13, v.02.0, paragraph 21, p. 7.
$PE_{CH_4,y}$ Project methane emissions from composting	Equation 5, CDM TOOL13, v.02.0, paragraph 22, p. 7.
$PE_{N_2O,y}$ Project nitrous oxide emissions from composting	Equation 7, CDM TOOL13, v.02.0, paragraph 26, p. 8.
$PE_{RO,y}$ Project methane emissions from composting effluents.	Equation 9, CDM TOOL13, v.02.0, paragraph 30, p. 9. Obs.: Effluent to be fully recirculated $PE_{RO,y}$ = zero
$Q_{COD,y}$ Amount of COD in the compost effluent	Equation 11, CDM TOOL13, v.02.0, paragraph 32, p. 10.

7.5 Calculating Leakage Emissions (LECH₄, SWDS, y)

There are two ways in which leaked emissions can occur:

1. The compost (end product) is stored anaerobically (e.g., a result of using compost piles or windrows that are too high or too wide).
2. When the compost is deposited in a landfill undergoing further anaerobic decomposition.

To calculate the leaked emissions in cases (a) and (b), the CDM TOOL4 Emissions from solid waste disposal sites applies; the same procedure is used for calculating the baseline (see Baseline Calculation). The parameters considered are

1. Amount of compost (W_x) subjected to anaerobic conditions;
2. DOCj (% of wet mass) = Fraction of degradable carbon in compost

We suggest using DOCj = 7.5 (% of wet mass).

8. ACCREDITATION

Processors, Recyclers, Network Integrators (INTs) and NGO beneficiaries must be accredited to participate in the Carrot Network. While Carrot conducts the full process of accreditation of Network Integrators, independent third-party audits are required of Processors, Recyclers (Coposters) and NGOs.

In addition to meeting all of the [participation requirements](#), candidates are required to provide additional information through Carrot's RFI (Request For Information) process regarding their business and environmental activities and successfully complete the accreditation process as detailed below.

8.1 Participants

8.1.1 Processors and Recyclers

Processors and Recyclers must successfully complete the three stages of the accreditation process to be approved for participation. The three stages include:

1. Complete the Accreditation RFI (request for information) form provided by Carrot;
2. Obtain preliminary approval by the Carrot accreditation team;
3. Pass a third-party audit performed by a specialist with adequate knowledge of composting and experience in measuring, reporting, and verifying activities related to GHG emissions and calculating GHG emission reductions or removals. It is essential that the auditor be familiar and current with the standards for certifying carbon credits. It is preferable that the auditor have proven experience in composting and that the expert be in the country where the Participant conducts its work.

The accreditation process will analyze the information as follows:

Processors must:

1. Provide the business licenses and permits that are legally required to conduct recycling activities.
2. As required by law, provide the environmental licenses and permits needed to carry out recycling operations.
3. Provide documentation confirming activities are in compliance with local safety laws and the best practices that are employed to manage risk to workers.
4. Describe the current impact of recycling activities on natural ecosystems.
5. Provide an action plan for addressing any potential natural ecosystem contamination that may occur.
6. Describe the processes and technologies utilized for conducting sorting tasks.
7. When sorting is conducted, provide full digital record-keeping of the sorting activities by material type and weight, along with provenance information and transport methods such as bin, container, and vehicle, as well as the corresponding waste transport manifest.
8. Prove that proper pick-up, drop-off, sorting, storage, and shipment of organic material is conducted through digital proofs submitted to the protocol by the Processor's INT. The digital record must specify the amount (in kg) and type of organic waste that was handled, along with the location where it was picked up (Waste Generator or another Processor), the Hauler, and the receiving party. An exemption of digital records capturing geolocation and weighing data is allowed for the first year of accreditation if an official government-regulated Waste Transport Manifest is provided. (See more details under the section [Mass Logistics, Measurement and Monitoring](#)).
9. Waste transport manifests will be required as supporting documents for digital records related to all waste hauling activities in areas where such practices are common.
10. Commit to participating in the crediting program for at least 24 months from the accreditation date.

Recyclers must meet all of the accreditation requirements belonging to Processors stated above, as well as demonstrate legal standing and professional capability to perform the recycling work.

11. Declare current recycling (composting) volumes;
12. Declare the current maximum composting capacity of the facility;
13. Provide a site plan of the composting facility and a list of the equipment utilized.
14. Provide the waste technology [baseline](#) (landfill, landfill with flaring, or dump) utilized to compare the environmental gains realized by organic waste composting. Composting facilities must fill out the Composting Waste Type form, found in [Section 6.2 Baseline Selection](#). The form must be updated at least once per year and presented during the annual audit. The Recycler must provide the data broken down by waste type, including average amounts, the traditional method of treatment, and the associated baseline for each waste type. The Recycler must also specify the name of the landfill that typically

receives each waste and provide evidence of any technologies used to minimize emissions. (Note: It is the Recycler's responsibility to contact its local landfill and request documental proof on flaring (methane burning) and/or energy-generative activities if the landfill utilizes such technologies.)

15. Describe the aerobic decomposition process utilized (e.g., windrow, breathable covers, or others).
16. Provide the average composting period (number of days) for the composting process.
17. Describe the procedures utilized for measuring and monitoring the quality of the composting process, such as temperature, humidity, aeration, and microbial activity, as well as test methods for compost quality. (For example: TMECC²¹).
18. Describe the location and range of territory covered by the services provided, and identify all hauling activities that exceed the 200 km project boundary radius by filling out the Project Boundary [tables](#) for waste pick-up and compost delivery.
19. Describe the positive social and environmental impacts associated with the activities.
 - a. Indicate whether there are low-income individuals involved in the activities, the number of individuals involved, and their proportion to the total workforce;
 - b. Indicate whether there are individuals who identify themselves as minorities involved in the activities, the number of individuals identified, and their proportion to the total workforce.
 - c. Indicate whether there are individuals who identify themselves as women involved in the activities, the number of individuals identified, and their proportion to the total workforce.
 - d. Indicate whether there are individuals who identify themselves as LGBTQIA+ involved in the activities, the number of individuals identified, and their proportion to the total workforce.
 - e. Indicate if there are local communities that benefit from the activities and describe the context.
 - f. Indicate whether there are environmental benefits to the activity within the area where the service takes place and describe the context.

8.1.2 Carrot Network Integrators (INTs)

The accreditation process for INTs involves a thorough analysis of the quality and security of data integration conducted through Carrot's API's. Data verification will be continuous, and poor data quality or security breaches may lead to penalties and permanent removal from the Carrot Network.

8.1.3 NGOs as Beneficiaries of Rewards

The accreditation process for a non-governmental organization will involve the NGO proving good legal standing and their commitment to either the advancement of the Circular Economy or providing education and nutritional assistance to at-risk children:

²¹ US Composting Council: Test Methods for the Examination of Composting and Compost ([TMECC](#)).

1. Submittal of the organization's governing documents
2. Submittal of the organization's tax ID
3. Proof of the organization's good standing to conduct business
4. Proof of the organization's good standing with tax authorities
5. Proof of the organization's mission or purpose to advance the transition to a circular economy or to provide educational and nutritional assistance to at-risk children

If the NGO is found to be affiliated with any political party, the NGO will be disqualified from accreditation.

Changes to any of the above must be communicated within two weeks of the changes and may result in the loss of privileges for receiving rewards (donations) and suspension or removal from the Carrot Network.

8.2 Responsibilities

It is the sole responsibility of each candidate to guarantee that the data on the Accreditation RFI forms is true, accurate, and up-to-date.

The candidate must complete and submit the Accreditation RFI to the Foundation in a timely manner, and all communication should be cordial and purposeful with the goal of completing the process efficiently.

An assessment as to the capabilities of the candidate to conduct its duties will be determined, and only upon approval may the candidate partake in the rewards distributed through BOLD credits.

Candidates understand that additional information may be required even after accreditation approval and agree to allow auditors to perform further verification work and even conduct a non-scheduled on-site visit.

8.3 Accreditation Period

Successful completion of the accreditation process allows Participants to engage with the Carrot Network for 24 months (2 years) from the date of the last audit.

8.4 Renewal

Accredited Participants, excluding INTs, must renew their accreditation before the completion of 24 months (2 years) from their last accreditation date. It is the responsibility of each Participant to engage with Carrot's "Operations Team" to ensure their accreditation is successfully completed in time. We recommend that Participants reach out at least 6 months prior to the accreditation expiration date.

Accreditation renewal may be initiated at any time after 6 months from the last accreditation date.

Independent audits need to be contracted by Processors, Recyclers and NGOs directly from a list of Auditors accredited by Carrot.

Carrot's accreditation team can be reached at operations@carrot.eco.

8.4.1 Processors and Recyclers

In order to renew the accreditation of Participant status, Processors and Recyclers must complete a full accreditation review, including a third-party audit as described above, which includes updated information on the baseline selection by filling out the typical disposal and baseline selection form located in section [6.2 Baseline Selection](#) as well as activities that have occurred outside of the project boundary.

8.4.2 Carrot Network Integrators (INTs)

INTS will not be required to undergo a accreditation recertification for Participant Accreditation as the analysis of the data and relationship is ongoing.

8.4.3 NGOs

In order to renew the NGO's accredited Participant status and be eligible to receive donations, NGOs must complete a full accreditation review, as described above.

9. MONITORING & MEASURING MASS

9.1 Mass Recording Requirements

At each point of the recycling supply chain, waste mass data, including waste type(s) and amount (kg), must be captured into a digital information system that records the provenance (location and prior owner) and the Hauler, as well as the destination and new owner (the Receiver). For more information, see [Validators & SOs](#).

The net weight in kg must be properly recorded.

$$\text{Net Weight (kg)} = \text{Gross weight (kg)} - \text{Bin weight (kg)}$$

Organic waste subtypes must be identified. Reference the list of eligible waste types in [Section 6.2 Baseline Selection](#).

All data must be provided with accuracy by qualified personnel holding clearly identified roles and responsibilities under proper supervision. The monitoring process of the activities must encompass steps relating to waste identification, pickup, hauling, delivery, sorting, and

transformation. All waste must be weighed as soon as it arrives at the composting facility, before the start of the composting process.

At a minimum, the final leg of the waste supply chain must be fully documented to report the drop-off of waste at a recycling facility. This includes 1) the identification of the last location where the waste was picked up (a Waste Generator or Processor) along with the responsible individual at the pickup location (the "Holder"); 2) the Hauler that transported the waste mass; and 3) the Recycler's responsible party at the drop-off location (the "Receiver"), who serves as the "[Validator](#)" of the amount, quality, and type of waste received at the recycling facility.

Quality procedures to acquire and manage data must be established, including to account for uncertainty in data and parameters, where applicable.

9.2 Establishing Chain of Custody

Waste mass data submitted to the Carrot Network is codified into unique digital assets called MassIDs and validated by the Holder and Receiver of the waste mass. Provenance and Chain of Custody are recorded in MassIDs through supply chain event data that transfers waste responsibility of MassIDs on a first-in-first-out basis in accordance with the rules established by the Carrot Network (for more information, see [MassIDs - Codifying Waste](#) in Carrot's whitepaper).

9.3 The Recycler

While certification of MassIDs involves verification of organic waste (MassIDs) delivered to a recycling facility, the work of composting requires the addition of organic aggregates (other organic waste complements and bulking agents) to compose a compost heap. A combination of nitrogen inputs (food waste and sludge) and carbon inputs (green waste and other organic aggregates) must be obtained to establish the necessary nitrogen-to-carbon ratio for proper decomposition. Therefore, diversion of food waste to composting facilities also drives demand for additional, secondary organic waste aggregates, such as aggregates. Given that most aggregates end up dumped into the environment or buried in landfills and that they also emit methane in a similar proportion to food waste or sludge waste, the work of diverting other organic waste aggregates from landfills is also critically important to combat greenhouse gas emissions from landfills. Let's not forget that hauling and landfilling green waste and aggregates is a big cost to municipalities, and private sector-driven composting can reduce this financial burden.

BOLD takes a conservative approach and only permits the calculation of GHG emissions reduced based on the tracked waste mass that arrives at a composting facility and is deposited into a compost heap, including those of organic composting aggregates such as green waste.

9.4 Processors and the Waste Generator

Processors and Waste Generators must prove through a digital record registered in a waste management application (INT) that a specific amount (in kg) of organic waste was picked up at their location by a Hauler and delivered to an accredited Processor or Recycler.

A waste transport manifest will be required as corroboration of digital records for organic waste pickup at businesses.

In cases where waste weight is not captured digitally using a scale, waste weight reported in official government waste transport manifests may be used for the first year following accreditation. This provides sufficient time for the composter and its haulers to digitize their operations.

Waste pickup at residences (households and apartments) will require digitally captured, georeferenced data. If a pickup is conducted at a residence without weighing, then a conservative average can be utilized. (Note: all Waste Generators will be considered as the "Source" of organic waste generation.)

In the case where a Hauler is not identified, the Waste Generator is considered the Hauler, as the responsibility with regard to waste belongs to the Generator or Processor until it reaches another Processor or the Recycler (aka End Processor).

9.5 Sludge (Domestic and Industrial)

The BOLD Carbon (CH₄) methodology considers wastewater treatment plants as the Waste Generator.

9.6 Carrot Integrators (INTs) & Data Rights

It should be noted that all Participant data and corresponding logistics, supply chain, and waste management data are submitted to the Carrot Network through software management applications accredited as Carrot Integrators (INTs) by the Carrot Fndn.

9.7 Data Responsibilities and Protection

Each Participant is responsible for the accuracy of the data that is recorded on the Carrot Network.

The burden of meeting data accuracy rests with the Participants working together with INTs (Carrot Integrators) that are submitting the data to the Carrot Network.

9.8 Bad Actors, Self-Policing, and Proof-of-Authority

When economic rewards are involved, everyone has a vested interest in ensuring the ecosystem works well. MassIDs track the chain of custody and serve as the vehicle for distributing rewards, so when a MassID is flagged for suspicious activity or identified as containing bad data, it is disqualified from being included in credits, resulting in financial penalties for everyone associated with that MassID.

In addition, Bad Actors may be temporarily suspended or permanently removed from the Carrot Network, seriously punishing every Participant associated with the Bad Actor and affecting the attractiveness of the service to its customers. This is known as Proof-of-Authority (PoA), a system that ensures actors will do everything in their power to maintain their reputation.

PoA serves as the fundamental building block for self-policing across recycling supply chains. For more information, see the section on [penalties and suspensions](#).

10. CERTIFICATION OF ACTIVITIES

Carrot certifies the arrival of organic waste at professional composting facilities, proving waste was diverted from landfills, incinerators, and the environment, and identifies the good actors.

10.1 The Certification Process

Certification is a comprehensive process that contains seven (10) steps:

1. Development of the methodology in consultation with industry experts and consultants;
2. Validation of the methodology by a credible second-party auditing organization.
3. Accreditation by Carrot of Network Integrators (INTs) that provide supply chain and recycling data, if not already accredited.
4. Pre-accreditation by Carrot of Processors and Recyclers involved in the given supply chain;
5. Independent, third-party audits of the Processors and Recyclers and their recycling activities, conducted by reputable and experienced professionals in recycling and measuring and verifying GHG emissions;
6. Accreditation of the Recycler and/or Processor.
7. Running of Carrot's dMRV verification scripts (code) for validating supply chain mass data quality, verifying activities, and recording mass codification and chain of custody;
8. Running of Carrot's dMRV verification scripts (code) for validating GHG emissions prevention according to this methodology and issuing GasIDs generated at the Recycler;
9. Publication of data inputs and outputs to a public, immutable database that can be easily accessed and verified by all Participants.
10. Issuance of BOLD Carbon (CH₄) credits by the Carrot Fndn as Tokenized Carbon Credits (TCCs) in the form of non-fungible tokens (NFTs) that provide verifiable data relating to supply chain activities and distribution of rewards to each Participant on a public blockchain.

[Note: Retirement of BOLD Carbon (CH₄) credits by “burning” NFTs for permanent ownership and saved to a decentralized public database (e.g., Ethereum), serves as a high-integrity and scalable registry solution that can be accessed by other Registries to verify compliance.]

The Carrot Fndn works on a continuous basis with consultants and industry experts to develop and improve this methodology. Updates to the methodology and new versions will be

communicated to all stakeholders as they are implemented, and they are expected to occur every year for the first 4 years and then every 4 years.

10.2 Allowable Project Period

BOLD CARBON (CH₄) credits can be issued from MassIDs that are audited and verified, going back to January 1 of the prior calendar year, as long as all criteria established under the BOLD CARBON (CH₄) methodology are met.

10.3 Recertification

Carrot does not apply a “recertification” process as is commonly practiced by standards in the carbon credit industry. Instead, Carrot requires that Processors and Recyclers renew their accreditation “certification” consistently while aiming to promote continuous improvement. For more information, see the section on [renewal](#).

10.4 Expiration

Issued credits do not expire. Carrot Fndn does maintain the right to cancel credits if deemed necessary but must provide justification.

11. ISSUING BOLD CREDITS & DISTRIBUTING REWARDS

Code-audited MassIDs and GasIDs are packaged into BOLD CARBON (CH₄) Credits, ensuring rigorous verification of supply chain contributions and composting activities for credible greenhouse gas emissions prevention claims.

MassIDs, GasIDs, and BOLD CARBON (CH₄) Credit IDs can be looked up in Carrot’s public registry at <https://explore.carrot.eco/>.

11.1 Credits and Tokenization

A BOLD CARBON (CH₄) Credit is a [Tokenized Carbon Credit](#) (TCC) as defined in the Carrot White Paper. TCCs are issued in the form of a non-fungible token (NFT) using the ERC-721 standard and amounting to a measured weight (tons) of prevented CO₂ equivalent emissions by diverting organic waste from a landfill to a recycling facility to be composted.

Carrot Fndn is under no obligation to sell the TCCs issued but will apply a best-efforts basis to ensure that all participants recorded in the chain of custody of each MassID are rewarded for their contributions and that a fair value for the benefit realized to society and to the environment is obtained.

Proceeds from the purchase of each TCC will be distributed in the form of stablecoins (e.g., USDC) to each Participant wallet over the blockchain to ensure transparency in the distribution of rewards.

11.2 Rewards Distribution Model

Rewards are distributed in accordance with the contribution weight of each MassID within each credit (TCC) and the participant allocations within each MassID.

The smart contract for the BOLD methodology calculates reward amounts based on the Rewards Distribution Policy and distributes tokens that were used to purchase each NFT to contributors's wallets based on the policy at the time of the sale. Rewards distribution percentages can be found at: <https://whitepaper.carrot.eco/carrot-methodologies/rewards-distribution-policy>.

Participant categories include:

G	Waste Generator
B	Bin Custodian
H	Hauler(s)
P	Processor(s)
R	Recyclers (All Recyclers are also a P)
I	Carrot Network Integrators
A	Author of a Methodology
D	Developer & Distributor of a Methodology
N	Carrot Network

The Carrot Foundation, with the support of its community members, will adjust distributions to optimize participation and recycling rates for different locations around the world.

11.3 Rewards Distribution Discounts for Large Revenue Businesses

Waste Generator businesses that generated more than US\$4 million in revenue in the prior calendar year will have the rewards attributed to them reduced by 50% so as to not discourage credit buyers from buying credits that have a portion of the rewards being distributed to large corporations. While some may disagree with any amount of proceeds from the credit going to large businesses, a financial incentive is still important to encourage participation.

The portion of the credit that was discounted from large businesses will be directed to a digital wallet managed by the Carrot Fndn to be donated to accredited Non-Governmental

Organizations (NGOs) involved in advancing circular economy activities in the country where the Recycler is located. More details can be found within the [Rewards Distribution Policy](#).

For country-specific reward discounts for large revenue businesses, see the “Reward Distribution Discounts” section within the [Rewards Distribution Policy](#) of the Carrot White Paper.

11.4 Exemption from Large Business Qualification

All Waste generator businesses will be considered by default to be large businesses generating more than US\$4 million in revenues per year. Waste Generators wishing to obtain medium or small business status will need to request a business size adjustment and provide documentation proving their revenue status. Prior calendar year financial status will be permitted.

An email request for business size adjustment can be submitted to: operations@carrot.eco.

11.5 The Incentive Mechanism for Full Supply Chain Digitization

Unfortunately, recycling supply chains rarely record the chain of custody in digital fashion through to the source where waste is created. Waste Generators are left unsure whether their sorting efforts are yielding environmental results (“Is my waste actually being recycled?”) or if it is worth paying for such services. In addition, there is no incentive to sort when free pickup is available, even if it is being sent to a landfill or dump. For more information, see [Reaching the Source of Waste Creation](#).

The Carrot Network applies an incentive mechanism to encourage recycling and composting service providers to digitize their supply chains all the way to the source of waste creation in order to bring clarity and rewards to the Waste Generator, who is the key player in making sure waste is sorted properly as soon as it is created.

A discount is applied (see Distribution Discount under the [Rewards Distribution Policy](#) section of the whitepaper) to the rewards that Recyclers, Processors, Haulers and Bin Custodians receive when the Generator is not identified digitally and the full chain of custody can’t be established.

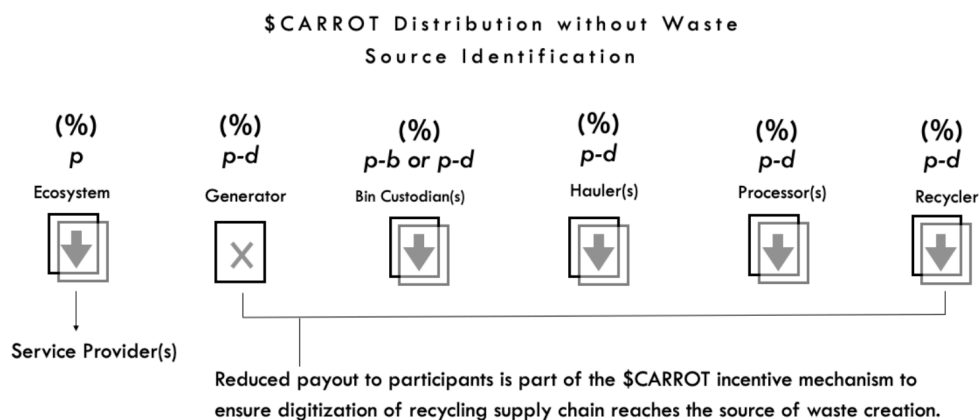


Figure 5: Carrot distribution without waste source identification

The rewards that would be paid out to service providers if the Waste Generator were identified, as well as the portion allocated to the Waste Generator are retained by the Network for use by the Carrot Foundation to support growth in the network. More information can be found at [Waste Source Not Identified](#).

11.6 Recognition of Ecosystem Ideology

It is important that Credit Buyers recognize that the purchase of credits serves to support a community of individuals and businesses working together as an ecosystem to perform a specific and important environmental task. This means that it is possible that rewards may be distributed to companies that the buyer views as not sharing the same values or even to competitors.

It is important to have an ecosystem mindset and understand that the same may occur in reverse; a different Credit Buyer could be purchasing credits that distribute rewards to the company in question for its composting work, and the Credit Buyer wishes they were going to a different company.

11.7 Token Retirement to Carrot Registry

Buyers of BOLD CARBON (CH₄) can “burn” the TCCs (the act of permanently retiring the credit) to Carrot’s Registry to prove permanent ownership. Holders of BOLD CARBON (CH₄) should only report their environmental contribution once the credits are retired and can no longer be transferred. More information is available at the [Carrot Registry \(EPR/ESG\)](#).

11.8 Forward Contracts

The foundation may sell BOLD CARBON (CH₄) credits in non-transferable forward contracts for future delivery of credits that will contain full, realized environmental gains. Selling forward contracts is a mechanism to help finance the transition to a circular economy. Recyclers, INTs, and other service providers gain clarity in the potential rewards that can be generated and are incentivized to invest time and effort to become part of the ecosystem.

11.9 Refunds

Given the early stages of the development of the Carrot Network, refunds on credits sold or requests for exchanging Tokenized Carbon Credits will not be met at this time.

We expect the reason for such requests to most likely involve possible bad data regarding MassIDs and GasIDs. Given the complexity of reverse engineering TCCs after they are sold to address a GasID, the Carrot team prefers to agree with Buyers on a no refund or replacement policy for the time being.

The risk of bad data is expected to be very low due to the quality of the data being collected and the safeguards in place.

12. CO-BENEFITS OF COMPOSTING

Composting generates significant co-benefits to society.

While we list some of the co-benefits below, understand that these are not certified under this methodology and should not be considered in any way or priced in any BOLD Carbon credits sold, as the co-benefits are reserved for a separate credit, a BOLD Recycling Credit.

12.1 Avoiding the “bad and the ugly”:

Composting helps to:

- Reduce methane emissions at landfills and dump sites.
- Reduce contamination of recyclables and improve sanitary and health conditions for sorters, the combination of which can boost recycling performance by 2X–5X in recycling centers.
- Reduce raw material extraction. Better recycling performance preserves natural resources that future generations can use, protects habitats, and eliminates carbon-intensive activities associated with extraction, hauling, and processing raw materials.
- For municipalities, reduced costs associated with healthcare and reduced volumes of waste sent to landfills and incinerators impact the bottom line directly. Collection and hauling costs are reduced immediately, as are tipping fees at landfills and incinerators, which are charged on a per-ton basis for the waste deposited. Costs associated with new landfills are pushed into the future, or even eliminated, as landfill life expectancy is extended.
- Reduce organic waste in landfills and incinerators, which lessens health and environmental costs associated with contamination of soil, water, and air.
- (For more information on the “bad,” see [Recycling Systems are Broken](#).)

12.2 Increasing “the good”:

Some of the benefits of composting include:

- Compost, the output from the work of composting biological waste, is an incredibly valuable, natural, nutrient-rich byproduct that is critical to restoring topsoil and protecting our future food security. According to some at the UN, topsoil and food security are an even bigger problem than climate change.
- Compost provides nutrients to the soil, reducing the need for fertilizers and associated costs.

- Compost captures and holds moisture in the soil, reducing the costs of irrigation and the strain on water resources.
- Compost stimulates life in the soil, increasing resilience to pests and reducing the need for pesticides and associated costs.
- Fertilizers and pesticides, which typically are formulated from petroleum derivatives and also carry carbon-intensive supply chains, can be significantly reduced.
- Healthy and nutrient-rich topsoil improves plant growth and photosynthesis performance, removing more carbon dioxide from the atmosphere and “sinking” it underground in its roots. The contribution is profound. Composting transforms current biological waste treatment solutions from a net carbon emitter to net carbon sequester (becoming carbon negative.)
- Composting recycles nutrients and carbon for agriculture, which in turn produces food that is consumed and transformed into organic waste. Thus, composting plays an important part in the carbon cycle and in the circular economy.
- Composting is a green job generator, yielding ~3.5 direct green jobs for every one job at a landfill or incinerator. And indirectly, by cleaning up recyclable and reuse streams, composting can generate many more green jobs in the recycling, remanufacturing, and repair fields, representing a total relative job potential of 290.5 green jobs for every one job at a landfill or incinerator, according to Gaia²².

13. ENVIR., SOCIAL & ECONOMIC ACCOUNTING

BOLD CARBON (CH₄) is a Tokenized Carbon Credit (TCC), issued in the form of a non-fungible token (NFT), that corroborates, with a high degree of certainty, that an organic material mass (measured in kg) was composted (recycled) and an amount of CO₂ equivalent emissions at a landfill was prevented. For more information on TCCs, see the sections in the white paper on [Recycling Tokens](#) and [TCC \(Carbon Credits\)](#).

Holders of retired BOLD CARBON (CH₄) credits may claim GHG emission offsetting for their contributions to emissions reduction.

Holders of retired BOLD CARBON (CH₄) credits may not make claims in waste reduction or associated co-benefits, as their claims relate only to the emissions that were reduced at landfills. The waste reduction and co-benefit claims are reserved for holders of retired Tokenized Recycling Credits (TRCs) issued under a separate methodology. The risk of double counting is negligible, as Recycling Credits are utilized to meet Extended Producer Responsibility targets and do not account for GHG emissions, and Carrot takes significant precautions to ensure that no MassID has more than one TRC and TCC associated with it.

However, holders of BOLD CARBON (CH₄) credits may also be granted recycling credits associated with the waste mass being recycled if the following conditions are met:

²² Gaia: Zero Waste and Economic Recovery - [The Job Creation Potential of Zero Waste Solutions](#)

1. The underlying MassIDs don't already have Tokenized Recycling Credits associated with them yet.
2. The underlying MassIDs meet the criteria for the issuance of recycling credits detailed in a separate Carrot methodology.
3. The BOLD CARBON (CH₄) credit has been retired, meaning it can no longer be transferred.

The co-benefits associated with BOLD CARBON (CH₄) cannot be utilized in pricing negotiations or communication by the holder of the carbon credits. This avoids the possibility of double counting co-benefits.

If a BOLD CARBON (CH₄) Buyer uses the TCC for official waste offsetting and/or co-benefits claims and/or in market communications, it will be penalized and potentially suspended from purchasing credits in the future.

Finally, supply chain contributors, (Waste Generators, Haulers, Processors and Recyclers) who contribute to the issuance of BOLD Carbon (CH₄) credits by sorting, hauling and processing organic waste cannot make emissions offsetting claims, as they are not the holders of the retired credits. Supply chain participants can only make claims to "having contributed" to reducing the emissions that were measured and verified by the ecosystem. If a supply chain participant makes such claims, they will be penalized and potentially suspended from participating in the crediting program going forward.

14. OFFSETS AND GREENWASHING

The use of offsets as a form of investing in systems that reduce negative externalities is a fundamentally important practice, even if it is still in its early stages. Critics of such schemes argue that offsets are nothing more than a form of greenwashing where large companies can buy credits at a low price and keep polluting, in essence getting a "free lunch" while not actually being encouraged to shift to cleaner practices. Such critiques are fair when the Credit Buyer realizes outsized marketing value compared with the actual investment made. Priority should be given for the most part to decarbonization operations where possible, if financially viable.

The other side of this coin is that any amount of investment in pollution prevention systems is incredibly valuable in building the systems needed to transition to a more sustainable planet. "Offsetting" is a fundamentally effective idea, as it attributes the cost of cleanup to the companies that are commercially benefiting from the pollution being created, and the purchase of offsets, when executed properly, can drive community action on waste reduction through better sorting and contracting of performant recycling services. More regulation can ensure that all companies are "offsetting" a "fair" portion of the pollution they are creating and paying a fair price. For an example, see "The Environment Exchange" attributions for "[Who is responsible for how much?](#)" in the UK. Extended Producer Responsibility programs, which measure the amount of waste that a company produces and require offsetting a portion of their waste, offer great promise.

The ideal scenario would be to establish a minimum floor price for credits agreed upon by market participants to prevent greenwashing. Second, increased adoption of EPR programs and enforcement would lead to price increases to the point where companies would be financially incentivized to switch to more sustainable product design, material choices, and business models. The cost will ultimately be transferred to the consumer, but all companies will then compete to develop products and provide services that pollute less.

The Carrot Network, functioning as a digital ecosystem, will enable EPR programs to scale quickly all over the world. In fact, BOLD serves as an important tool to help local regulators launch EPR programs for organic waste treatment.

15. PENALTIES & SUSPENSIONS

In the event of any irregularities in activities or in the reporting of data relating to a supply chain Participant, flagged as a potential “Bad Actor”, Carrot Fndn or a accredited independent third-party Auditor may suspend the Participant immediately from involvement in the CARBON BOLD methodology and participation in the issuance of certificates and/or credits related to it. Participants associated with any Bad Actors may also be suspended immediately. Additional information may be requested from all of the Participants involved until sufficient clarification has been provided in order to determine how long the penalty may be or if and when the Participant may be reinstated. Carrot Fndn has no obligation to return the value associated with the credits sold while Participants have been penalized, and the burden rests on each Participant to ensure that the data provided is accurate.

If any participant fails to provide a response to the request for information within 30 days, the participant may be permanently disqualified from participating in BOLD CARBON (CH₄) for the issuance of credits.

For the period in which the activities in question failed to meet the requirements of the BOLD CARBON (CH₄) methodology, participants will not receive any rewards from BOLD CARBON (CH₄) credits.

During the period of non-compliance, credits issued prior to this period involving the Bad Actor will not be sold until the situation is resolved.

In the event of fraud being identified for any of the requirements of the BOLD CARBON (CH₄) methodology, the participant will permanently lose their Accreditation, and applicable legal measures will be taken.

Any evidence of intentional practices that negatively impact the well-being of local communities or of natural ecosystems will serve as solid justification for permanent exclusion from participating in the BOLD CARBON (CH₄) methodology, other protocols utilized by the Carrot Fndn, and removal from the Carrot Network itself.

Legal action may be taken by the Carrot Fndn against the party for any damages done to the Foundation or its network.

16. QUALITY ASSURANCE AND QUALITY CONTROLS

As a technology-enabled dMRV solution, the BOLD CARBON (CH₄) methodology and the Carrot Network work in conjunction to digitally measure, report, and verify environmental contributions created through the activities of supply chain Participants collaborating to recover waste for recycling.

Because waste is tangible and easily measured, supply chains can be monitored, and the recycling activities performed by Recyclers are consistent and verifiable with a high degree of certainty. The quality of environmental reporting can be precise, especially when conducted in full digital fashion. [Note: The Carrot Network encourages full digitization by utilizing its [“Incentive Mechanism for Full Supply Chain Digitization.”](#)]

Implementing a quality assurance and quality control (GQ/QC) system in projects is essential to ensure the quality of the data that will be used in emission reduction estimates, in addition to allowing continuous improvement of project reports.

Quality assurance and controls on the Carrot Network involve a set of solutions, including: the identification of all participants (KYC), accreditation of the key actors (Recyclers, Haulers, Processors, INTs and NGOs), verification of a Recycler’s work through independent audits, supply chain data processing, scripts for Mass audits, methodology verification, and issuance of credits, utilization of Proof-of-Authority to identify and penalize bad actors, tracking of reward distribution through the use of blockchain network transactions, the use of immutable records in a decentralized peer-to-peer public network, and non-fungible tokens for retiring credits in a manner that cannot be transferred, among others.

In order to ensure that carbon emission reduction projects maintain transparency, consistency, integrity, and accuracy of data, project proponents must demonstrate that they have a quality assurance and quality control (GQ/QC) system in place. Checks will be carried out to evaluate the QA/QA plan and the competence of the people involved in data collection, coordination of activities, report writing, and critical analysis of the system. Additionally, measurement and monitoring equipment used will be verified to ensure it is in good working condition, calibrated, and adhering to its maintenance schedule with third-party certification if required by national and international standards.

Carrot will implement its own quality assurance and quality control (CQ/QC) system to ensure that the incentive mechanism is effective. The following key indicators will be monitored on an annual basis:

- Tons of CO₂ equivalent were prevented as a result of the project activity
- Distribution of values between chain members (generator, haulers, processors and the recycler)
- Structural improvements were made to composting yards

- Inclusion of small recyclers in the chain, as well as their technical evolution and compliance with compliance rules
- Volume of waste intercepted from landfills and dumps
- Volume of compost generated
- Increase in the number of formal jobs
- Among others that Carrot deems necessary

As a digital solution, quality controls will improve over time as larger data sets are utilized and verification models advance. Governance over the network will be progressively decentralized to local and global communities so that the technology can be adapted to suit the needs of specific local markets. Data is made publicly available with controls for privacy and confidentiality so that trust can be established between Participants in a manner that was not possible before the advent of blockchains.

Lastly, the technological solution and economics of the Carrot Network were designed to not interfere with or compete with the services and products created by the Participants in the recycling and waste management markets. Carrot is additive to all Participants and shares the proceeds from the sale of credits with all identified stakeholders, thereby making it inclusive and scalable globally.

17. UNCERTAINTIES

Uncertainties are common with new products and technologies that challenge the status quo.

We will list some of the uncertainties below:

17.1 Market

- The global community has not yet realized the importance of transitioning to the circular economy and understood that it has the potential to become the most important decarbonization tool available to the world. For most people, the connection between better resource management and reduced global GHG emissions remains unclear.
- While some recycling supply chains are digitized and well documented, the vast majority of waste hauling, processing, and recycling activities globally are not. Digitization, support from regulators, and economic incentives will take time to take hold.
- Companies typically do not measure their waste and carbon emission footprints, especially relating to waste diversion and scope 3 emissions, respectively. Many still don't understand the positive impact that can be generated for their businesses by engaging with their customers and communities at large to address environmental and social challenges collectively (e.g., waste offsets that distribute rewards across recycling supply chains.)
- Municipalities and governments lack the resources, expertise, and technologies to address linear economy problems and will need to recognize their new roles as limited stakeholders within a dynamic circular economy.

- Extended Producer Responsibility (EPR) programs are still in their infancy, and most are conducted without the use of technology. The utilization of recycled material purchase receipts (e.g., Packaging Recovery Notes) to prove financial contributions has proven to be easily manipulated, and payments to a single actor at the end of the supply chain do nothing to change the behavior of Waste Generators with respect to sorting waste properly.
- EPR programs for food producers are an innovation in themselves. While they are very much needed, the introduction of such programs will face resistance and take time.
- Without a floor price on credits, companies can purchase credits

17.2 Technology

- Blockchain is a disruptive technology that will change the way many businesses transact with their customers and conduct commerce with each other over the internet. While blockchains have been around for more than 20 years, they are still in their infancy. The promise for greater transparency, security, and trust is clear, but failures still exist. In addition, the concept of ownership within blockchain networks, where Participants obtain a stake in the network, partake in its governance, and shape its future, remains foreign to most and will take time to implement.
- Carrot's models for supply chain verification and audits are still in their early stages of development. They will improve significantly and rapidly, especially with the use of AI, but some failures can be expected.
- The development of Proof-of-Authority solutions that identify Bad Actors and penalize them and those associated with the Bad Actor is also still in the early stages of development. While PoA will become one of the most important tools for ensuring quality data is provided at a global level, it remains to be tested at scale.

17.3 Adoption

- While the Carrot Network and BOLD Recycling Credit have been designed to add value to all Participants, it remains to be seen if enough value will be distributed to each Participant to ensure that they take part. In addition, many environmentalists critique the use of offsets, claiming that they only serve as a license to pollute. The price of credits will need to factor in both the value that is being created for each participant as well as successfully drive waste reduction and substitution, very likely necessitating the establishment of a floor price.
- Owning a digital wallet will soon become as ubiquitous as having an email address, a cell phone number, or a corporate bank account. However, its use is still in its early stages. Concerns over financial regulation and self-custody of assets remain real, despite the added security and transparency they provide.
- The demands for a user to engage with the network have been designed to be minimal. Waste Generators, Haulers, Processors, and Recyclers only need to provide a wallet address in order to receive their rewards. Recycling Credit Buyers will need a more tailored experience to assist in the purchase of credits and to demonstrate proof of environmental contributions realized.

17.4 Quantification of composted waste

When a composting facility weighs organic waste using a calibrated and certified scale, the only source of quantification uncertainty is the precision of the scale and the weighing method. In such cases, the uncertainty is accurately measurable and does not exceed 5%.

17.5 Baseline emissions

Uncertainty in the baseline emission calculation arises from climate-specific variations in the equation. Refer to Table 17.2: “Correction Factor Considering Model Uncertainties,” where values range between 0.85 and 0.80.

Additional uncertainties exist regarding methane emissions and capture efficiency in landfills. To address this, the model applies tabulated correction values (see Item 17.2) ranging from 0.4 to 1.0. In landfills equipped with biogas capture, combustion, or utilization systems, operators may use efficiency reports to adjust or verify these correction factors. However, uncertainty cannot be estimated in advance.

These considerations apply only to the specific climate conditions and classification of the waste disposal site, as outlined in Table 17.2.

17.6 Emissions

17.6.1 Emission of the composting process

The uncertainty of emissions from the composting process is influenced by three key factors: the quantification of composted residue, its organic carbon composition, and the level of aeration during decomposition.

The calculation model (see Item 7.4) provides tabulated values for methane and nitrous oxide emissions from the composting process. Consequently, the primary source of uncertainty relates to the weighing of waste intended for composting, which is considered to be 5%.

17.6.2 Emission from the composting unit (e.g., machines and vehicles).

To calculate leaked emissions from the composting unit, tabulated values for fossil fuel and electricity consumption are applied based on the amount of composted waste (see Item 7.4). A 5% uncertainty discount is then applied, consistent with the uncertainty discount used for waste weighing.

18. COMMITMENT TO THE MARKET

Carrot Fndn commits to utilizing high-quality, practical methodologies that provide high-integrity credits while also enabling its implementation broadly and at the lowest cost possible.

Carrot Fndn commits to developing the best dMRV process possible to improve auditing and certification capabilities and expand market access to drive larger and broader impact.

Carrot Fndn commits to doing its best to price and sell credits in accordance with the environmental, social, and societal contributions that the activities verified within the BOLD methodology realize. In time, Carrot intends to sell credits on the open market to allow the market to set the price for its credits.

Carrot Fndn commits to doing its best to fairly distribute rewards among Participants, while understanding that Participants will often not agree with the allocation that is awarded to them (see [rewards distribution model](#)), as well as any discounts to distributions that are applied to encourage further digitization of waste supply chains (see [Incentive Mechanism](#)).

The Foundation commits to moving these decision-making processes to its community over time to make them inclusive of both local and global stakeholders.

19. APPENDIX

19.1 Country Conversion Table

- Waste Type [Conversion Table for Brazil](#)

20. DOCUMENT HISTORY

Version	Date (yyyy/mm/dd)	Status
v0.5	2023/12/01	Peer Review and Beta testing with early partners
v1.0	2025/02/26	Public Consultation and Beta testing with innovative companies
v1.0.1	2025/06/02	Official launch following feedback and corrections.
v1.0.2	2025/09/02	Minor editorial revision for clarity on the use of a term relating to geographical benchmarking. No impact on methodology rules, calculations or processes.

