

Policy Recommendation on Integrating Distributed Circular Economy Data into the MRR Framework and Enabling Intelligent Management

To: California Air Resources Board (CARB)

Submitted by: Sheng Su, CEO, Sustain You

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I. The Reality Check: MRR Is Missing the Real Battleground of Emissions Reduction

California's Mandatory Greenhouse Gas Emissions Reporting program (MRR) is a globally recognized regulatory benchmark. But a benchmark is not a destination.

Since the implementation of SB 1383, a structural contradiction has become impossible to ignore: the current MRR framework excels at recording the outcomes of emissions, but cannot intervene in the process of reducing them. It is a precise ledger of what has already happened — when what California truly needs is a system capable of intervening before emissions occur.

This gap produces three concrete policy blind spots:

Blind Spot 1: Time Lag. Emissions data is captured only after the fact. Regulatory action is always one step behind, and critical reduction windows are lost repeatedly.

Blind Spot 2: The Systematic Invisibility of Logistics Emissions. The transportation-related emissions generated by centralized waste processing are almost entirely unquantified within the existing MRR data chain. The true value of distributed emissions reduction is being systematically underestimated as a result.

Blind Spot 3: The Absent Resource Identity of Organic Waste. Within the current data framework, organic waste is classified as a liability — not an asset. This fundamental mischaracterization distorts the entire policy incentive structure of California's circular economy.

Closing these three blind spots is the central task of CARB's next regulatory upgrade — and the foundation of this recommendation.

II. Our Core Proposition: Rebuilding MRR Data Integrity with GaiareCycle-Link

We propose the integration of a scalable, high-precision digital module — GaiareCycle-Link — into the existing MRR framework. This is not a patch on the current system. It is a fundamental transition from end-point recording to full-lifecycle auditing.

Layer One: Spatial Integrity Framework — A Hard Guarantee of Data Credibility

The value of data depends entirely on its credibility. The greatest obstacle facing distributed emissions reduction data today is not collection difficulty — it is a crisis of trust. GaiareCycle-Link addresses this at the root through a Multi-Dimensional Cross-Validation Matrix.

The system integrates high-precision coordinate verification, hardware operational fingerprinting, and proprietary multi-spectrum spatial sensing technology into a triple-layer verification m

mechanism. It does not merely know where a device is — it confirms, through active environmental scanning, whether that location is genuine. Emissions reduction data generated by a distributed node is granted regulatory validity only when the device is confirmed to be within its designated compliance zone and its environmental sensing parameters match the verified baseline model. We call this the Geo-Biometric Lock. Its existence eliminates fraudulent reporting at the technical level — not through after-the-fact audits, but by making false claims structurally impossible.

The direct policy implication is clear: regulators can substantially reduce costly on-site inspections while obtaining real-time data with significantly higher evidentiary weight. Administrative costs decrease. Regulatory coverage expands.

Layer Two: Transparent Resource Conversion Mapping — Turning "Waste" into a Data Asset

GaiareCycle-Link extends the functional boundary of MRR from recording the disappearance of waste to tracking the creation of resources.

The system provides real-time documentation of the dynamic ratios in which organic waste is converted into organic fertilizer, feed materials, and high-value industrial inputs — along with complete downstream traceability. More significantly, when agricultural or industrial sectors utilize these locally converted products, the MRR data infrastructure enables automatic cross-sector carbon credit offsets. This will give California a transparent, equitable framework for cross-industry carbon accounting — and repair the most critical broken link in the current value chain.

III. The AI Management Layer: From Scattered Nodes to a Coordinated System

The greatest potential of a distributed architecture lies in its collective performance exceeding the sum of its parts. Whether that potential is realized depends entirely on whether a sufficiently intelligent backbone exists to connect them.

We recommend the establishment of a statewide AI-driven central monitoring and dispatch system that integrates tens of thousands of distributed processing nodes into a unified, responsive organism:

Real-Time Adaptive Optimization: AI continuously monitors the operational load and environmental parameters of each node, dynamically optimizing conversion pathways to ensure that every kilogram of organic waste is processed at peak efficiency — keeping greenhouse gas emissions at their lowest achievable level.

Statewide Resource Heat Mapping and Policy Intelligence: By aggregating multi-dimensional spatial data at scale, the state will — for the first time — possess a genuine real-time panorama of California's circular economy. High-pressure emissions zones and resource conversion gaps will be precisely identifiable, providing data-driven guidance for infrastructure planning and policy investment rather than reliance on delayed statistical reports.

Proactive Compliance Alerting: The system automatically detects data anomalies and triggers preemptive intervention before potential emissions risks materialize. The regulatory model shifts from reactive accountability to active process management. This is not an incremental imp

rovement — it is a fundamental upgrade in regulatory logic.

IV. Systemic Value: This Is Not Just a Data Project

What we ask CARB to recognize is not merely the technical feasibility of GaiareCycle-Link — it is the scale of systemic transformation it enables.

On emissions performance: organic waste converted at the point of origin — before methane generation reaches its critical threshold — achieves the lowest possible Global Warming Potential (GWP). This is a decisive advantage at the level of timing itself.

On system resilience: distributed processing significantly reduces the burden of large-scale waste transportation on municipal infrastructure, lowers overall operational costs, and provides local agriculture and supply chains with a stable, reliable resource stream — creating a self-reinforcing positive cycle.

On data asset creation: the fragmented organic waste streams dispersed across communities and businesses will, within this framework, become quantifiable, traceable, and tradeable digital assets — injecting new levels of transparency and liquidity into California's carbon markets.

On global leadership: a next-generation MRR framework integrating satellite imagery, spatial scanning, and AI-driven management will cement California's position at the frontier of digital climate governance. This is an institutional and technological advantage that no other state or nation can replicate in the near term.

V. The Call to Action: Now Is the Moment to Launch the Pilot

California does not lack ambition. It does not lack legislation. What is missing is the infrastructure to close the gap between policy intent and operational execution.

We call on CARB to immediately initiate a Distributed Resource Recovery MRR Pilot Program, incorporating GaiareCycle-Link as the lead testing framework — validating its data precision, compliance cost profile, and emissions accounting capacity at a defined, manageable scale.

Every day of delay means more organic waste continuing to emit within regulatory blind spots. More distributed reduction value silently lost through statistical gaps.

This is not a technology proposal. It is an opportunity to redefine the standard for climate governance in California. We are ready.

Submitted by:

Sheng Su

CEO, Sustain You

Sustain You is committed to reshaping the value chain of organic waste through modular, intelligent distributed systems — providing the hard technical infrastructure California needs to le

ad the next phase of its climate transition.