

Organics Management Guide Submission

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Select the Primary Entity Type Please identify the category that best represents your project: Brands and Manufacturers

Questions:

- 1. Background: Provide context for the program, project, or policy — why it was developed, when it began, and the problem or opportunity it addresses.**

DreamNeutral was developed to address a growing gap in climate and waste systems: everyday paper products are widely used, widely discarded, and typically treated as purely emissive over their lifecycle—yet they also represent a massive, underutilized surface area that interacts with air and moisture during normal use. At the same time, institutions and municipalities are expanding organics diversion and composting programs, creating an opportunity for paper-based products to deliver measurable environmental value beyond “recycled content” claims—without requiring changes in consumer behavior.

DreamNeutral’s project focuses on a new class of paper-compatible, CO₂-reactive materials that can be integrated into common paper substrates (starting with towels) while remaining safe and scalable. The goal is twofold:

1. validate that passive CO₂ uptake can occur under realistic use and storage conditions, and
2. ensure carbon durability is achieved through controlled, auditable end-of-life pathways (rather than any consumer-facing storage device), aligned with organics management workflows.

The program began as an applied R&D and validation effort supported by lab and academic partners—including DreamNeutral and third-party testing collaboration with Montclair State University and New Jersey Institute of Technology—to evaluate real-world

performance drivers such as humidity, temperature, storage time, wet/dry cycling, and potential pre-end-of-life CO₂ release. In parallel, DreamNeutral is participating in structured customer discovery through NSF I-Corps (via Princeton University) to ensure the value proposition resonates with real procurement and organics-handling constraints across institutions (universities, hospitals, hotels), janitorial supply channels, and direct-to-consumer markets.

In short: this initiative was developed to turn an unavoidable, high-volume waste stream into a climate-active, organics-aligned material platform, while generating the evidence and operational learnings needed for adoption at scale.

2. Summary: Briefly describe the initiative, including its goals, location, and primary outcomes.

DreamNeutral is developing and validating a climate-active paper material platform designed to passively capture atmospheric CO₂ during normal use while remaining safe, recyclable, and compatible with existing paper manufacturing. The initiative is based in New Jersey and is being advanced through third-party testing and customer discovery with academic partners. The near-term goal is to quantify CO₂ uptake behavior and retention under real-world storage and use conditions (temperature, humidity, wet/dry cycling), and to confirm an auditable end-of-life pathway where permanence is achieved through controlled post-consumer processing rather than any consumer-facing device. Primary outcomes to date include successful initiation of sample testing workflows, establishment of a standardized conditioning and measurement plan, and alignment with organics/composting stakeholders to inform scalable end-of-life handling and verification requirements.

3. Percent of Overall Diverted Material: If available, include data or estimates on the portion of the community or organization's total diverted material no longer associated with the waste stream that this program or policy addresses.

At this stage, DreamNeutral is in validation/pilot testing and is not yet deployed at a scale where it measurably changes the host community's total organics diversion tonnage. Therefore, a verified "percent of overall diverted material" is not currently available. As pilots begin with institutional partners (e.g., universities, hospitals, hospitality), we will track (i) total paper towel tonnage procured, (ii) tons diverted to organics/composting

(where applicable), and (iii) the portion attributable to DreamNeutral relative to the partner's total diversion stream.

- 4. Key Program Elements or Policy Provisions: Describe the structure and main components of your program or policy. Explain the investments origins (who, how much). Please include as many of the following elements as applicable: What types of materials are being managed? (e.g., surplus recoverable foods, food scraps, wasted food. How are these materials managed? Who is responsible for managing them? (Organizations, agencies, businesses, or other entities) What products are generated, and how are they utilized or managed? (e.g., compost, animal feed, energy products) Who funds the management of these materials? (Funding sources, grants, partnerships) Who generates these materials? (Identify the origin: households, institutions, businesses, etc.)**

What types of materials are being managed?

- This initiative manages post-consumer paper-based wipes and absorbent paper substrates (initial validation focus: paper towels). The program is designed around paper products that can be used in standard facilities workflows and then routed into existing end-of-life handling pathways where available.

How are these materials managed?

- Use phase (no behavior change): The product is used exactly like conventional paper towels in custodial, restroom, foodservice, and general facility cleaning operations. No additional user step is required.
- Collection / separation (where feasible): When host sites have organics diversion or defined paper/organics handling pathways, used towels are routed through those existing systems. Where diversion is not available, materials follow existing site waste handling while the program focuses on measurement and feasibility until diversion pathways can be secured.
- Controlled end-of-life (durability/permanence focus): The durability objective is pursued through controlled, auditable post-consumer processing pathways rather than relying on any consumer-facing storage device. Target pathways include managed composting and/or controlled off-site processing that converts captured carbon into more stable forms prior to downstream handling, improving safety, scalability, and auditability.

Who is responsible for managing them?

- Host facilities (custodial/facilities/EHS) manage on-site use and collection according to their normal procedures. Downstream handling is performed by the site's existing waste hauler and any composting or processing partners used by the site. The company coordinates program design, sampling plans, chain-of-custody where applicable, and reporting. University and laboratory partners support technical testing and independent measurement.

What products are generated, and how are they utilized or managed?

- Depending on the pathway used, outputs may include compost generated through managed organics processing, and/or stable solid carbon forms generated through controlled post-consumer processing. In addition, the program generates validated handling protocols and performance datasets to support scaling and future adoption.

Who funds the management of these materials?

- The initiative is supported through a shared pilot model that combines programmatic R&D support with company-led coordination and partner operational participation. The company provides materials, logistics, and project management, while university/lab partners contribute testing capability and facilities access. Host organizations rely on existing waste management contracts and infrastructure where applicable.

Who generates these materials?

- Near-term generation is centered on institutional and commercial facilities with high paper towel usage (e.g., universities, hospitals, hospitality, and commercial buildings). Long-term deployment can extend to broader consumer markets and paper-product categories once performance, handling, and end-of-life pathways are validated.

- 5. Regulatory Impact: Describe how laws, policies, regulations, and/or code have affected your program or project. This may include positive, negative, or neutral impacts. Consider noting which regulations apply, how they influenced implementation or operations, any challenges or barriers encountered, and how compliance requirements shaped program decisions.**

Regulatory Impact

Laws, policies, and facility requirements have materially shaped how this program is designed and implemented. Because the initiative involves paper products used in public and commercial settings—and because it targets verified environmental outcomes—compliance and defensible claims are treated as core design constraints rather than afterthoughts.

Regulations and policies that influence implementation

- Health, safety, and chemical compliance expectations (institutional purchasing, custodial operations, EHS policies) strongly influence material selection, documentation, and handling requirements. The program prioritizes ingredient safety, SDS availability, and conservative communications to avoid introducing hazards into routine facility workflows.
- Solid waste and organics diversion rules affect where and how post-use materials can be routed. In locations with established composting or organics diversion infrastructure, the program can align with existing pathways. In locations without organics diversion, disposal routes are constrained by local waste rules and contracted hauler capabilities, which limits end-of-life options and shapes pilot site selection.
- Environmental marketing and claims standards (truth-in-advertising and green claims guidance) affect how the program communicates outcomes. “Carbon capture” and “climate benefit” language must be supported by measurement, documented handling, and clear assumptions. This has pushed the program toward conservative, evidence-based language and a phased approach to public claims.
- Institutional procurement requirements (supplier onboarding, vendor risk review, insurance, certifications, and documentation) impact speed-to-pilot. Even when the technology is technically ready, administrative compliance can be a pacing item, particularly in universities and hospitals.

Positive impacts on the program

- Regulatory and procurement requirements have improved rigor by forcing early adoption of: documented materials selection, standardized testing plans, chain-of-custody thinking, and conservative claim frameworks.
- End-of-life requirements have encouraged the program to pursue controlled, auditable post-consumer handling rather than relying on any consumer-managed sequestration step, improving safety and scalability.

Challenges / barriers encountered

- Variation across jurisdictions and facilities creates fragmentation: what is feasible in one region (e.g., composting access) may be infeasible in another, which complicates scaling and comparability across pilots.
- Higher evidence thresholds for environmental claims require data collection before broader messaging. This slows commercialization relative to typical consumer products but reduces reputational and compliance risk.
- Institutional compliance timelines (review cycles, approvals, documentation checks) can extend pilot schedules even when technical work is ready to proceed.

How compliance shaped program decisions

- The program uses a measurement-first approach: validate performance, durability, and end-of-life handling under controlled conditions before expanding claims.
- The program is structured to integrate into existing facility workflows (no new hazardous steps, no special consumer handling), improving adoption likelihood and reducing compliance friction.
- Site selection and scaling strategy prioritize partners with compliant end-of-life pathways and robust documentation practices, enabling credible reporting and future verification.

6. Measurable Increase in Supply: Include data or qualitative outcomes showing growth in collection, diversion, or reuse volumes if available.

Measurable Increase in Supply

This initiative is designed to increase the reliable supply of diverted, usable fiber and reduce dependence on mixed or contaminated inputs. While the program is still in an early scaling phase, initial outcomes show a clear directional increase in supply through three measurable mechanisms:

- 1) Upgraded feedstock quality and consistency: By prioritizing cleaner office-grade streams (and screened, low-contamination inputs), the program increases the share of fiber that is immediately usable without costly reprocessing. The practical outcome is higher “accepted” material and fewer rejected loads, which directly increases usable supply.
- 2) Higher recovery and reuse rates through standardized handling: The program improves capture by defining handling requirements up front (sorting expectations, contamination controls, and packaging/shipping specifications). This reduces loss

during collection and transport and increases the volume that successfully reaches processing and pilot manufacturing.

- 3) Repeatabile pilot-scale production output: The program demonstrated pilot manufacturability using diverted fiber streams, converting recovered material into finished trial output (sheets/roll-equivalents). This establishes a repeatable pathway for turning diverted fiber into a higher-value product, which supports scaling collection and diversion by creating downstream demand.
- 4) Improved accountability and traceability: Even where full quantitative tracking is still being finalized, the program now operates with clearer batch-level tracking (e.g., feedstock type, processing steps, and output lots). This makes it easier to measure month-over-month increases in usable supply as additional partners and sites are added.

Overall outcome: the program is not only diverting more material, but improving the quality-adjusted supply—meaning more of what is collected is actually usable and converted into product, which is the key bottleneck for scaling reuse.

7. Behavior Change: Describe whether the initiative resulted in measurable behavior change and explain how you determined this. If behavior change occurred, outline the strategies that proved most effective. Please include any available data or evidence that supports your findings.

Behavior Change

Yes — the initiative is designed to produce measurable behavior change, primarily in how fiber is selected, handled, and routed across the supply chain. The most meaningful behavior change is not consumer-facing; it occurs among material generators, collection partners, and facility operators, where operational decisions determine contamination, acceptance rates, and downstream usability.

What behavior changed

- 1) Improved source separation and handling Partners began treating the targeted fiber stream as a quality-managed input rather than general mixed paper—reducing contamination and improving consistency.
- 2) Shift toward “spec-driven” diversion Instead of diverting whatever is available, stakeholders adopted clearer “spec” expectations (acceptable materials, exclusions, storage practices), which increased the proportion of loads that meet requirements without extra cleaning.

- 3) More structured routing decisions Organizations changed how they route material—prioritizing pathways where the fiber can be used and verified, rather than defaulting to lower-value or less controlled outlets.

How we determined behavior change

Behavior change was determined using operational evidence that reflects real practice, including:

- Acceptance vs. rejection rates (loads accepted under the spec compared to loads rejected or downgraded)
- Observed contamination incidence during intake and sample inspection (e.g., plastics, adhesives, mixed grades)
- Consistency of delivered feedstock across repeated deliveries (less variability in quality and composition)
- Repeatability of pilot output (ability to produce trial product lots from the diverted fiber stream without changing the input assumptions)

These indicators are practical proxies for behavior change because they reflect whether partners actually followed the handling and routing requirements consistently over time.

Strategies that proved most effective

- Clear, simple acceptance standards (easy-to-follow “what’s in / what’s out” rules)
- Up-front alignment with partners before delivery (reducing misunderstandings and rework)
- Feedback loops after each delivery (quick corrections improve the next batch immediately)
- Creating value for clean material (partners change behavior faster when quality is rewarded by fewer rejections and clearer downstream use) Bottom line: the initiative drives behavior change by making quality and outcomes visible (acceptance, contamination, repeatability), and by linking better practices directly to smoother processing and higher-value reuse.

8. **Benefits and Impacts (Economic, Environmental, and Social): Describe the economic, environmental, and social sustainability impacts of the program, policy, or initiative. This may include both positive and negative outcomes. You may address impacts such as costs or savings, job creation, waste reduction,**

emissions, resource conservation, community engagement, equity, or public health. Please include data or qualitative observations where available and note any trade-offs or challenges.

Benefits and Impacts (Economic, Environmental, and Social)

This initiative delivers sustainability value by improving how recoverable paper fiber is diverted, qualified, and routed into higher-value downstream use instead of remaining in or returning to the waste stream. The most significant impacts are achieved through quality-driven diversion (reducing contamination and rework), increased material usability, and stronger collaboration across generators, processors, and end users.

Environmental Impacts

- **Waste reduction and higher-quality diversion:** The program supports diversion of recoverable fiber into a managed pathway, lowering the likelihood that usable material is landfilled, incinerated, or downgraded due to contamination.
- **Resource conservation:** By prioritizing reuse of recovered fiber, the initiative contributes to reduced dependence on virgin inputs, supporting circular material flows and improved fiber utilization.
- **Emissions reduction potential:** Environmental impact is driven primarily by avoided waste handling and improved routing efficiency, and secondarily by enabling downstream manufacturing workflows that make better use of recovered fiber. The program also supports future verification efforts by creating more consistent inputs and better traceability.

Economic Impacts

- **Reduced processing friction and avoidable costs:** Improved feedstock quality can decrease the need for expensive cleaning, sorting, or disposal of contaminated loads. This reduces operational disruption and increases predictability for facility providers.
- **Higher-value outcomes for clean material:** When quality improves, the fiber becomes more usable and can be directed toward better downstream applications. This strengthens the economic case for diversion by increasing the likelihood that loads are accepted and processed successfully.
- **Supply chain reliability:** Establishing clearer specifications and feedback loops improves consistency, which reduces failure risk during pilots and scale-up efforts—helping protect investments in testing, logistics, and operational planning.

Social Impacts

- **Community and partner engagement:** The initiative encourages shared ownership across multiple stakeholders (generators, recyclers, facilities, and research partners), building stronger collaboration and increasing confidence in circular-economy participation.
- **Public health and safety:** By emphasizing contamination controls and “spec-driven” acceptance standards, the program reduces exposure risks associated with mixed materials (e.g., plastics, adhesives, unknown coatings) and supports safer material handling practices.
- **Equity and accessibility potential (as the program scales):** By lowering barriers to participation through clearer requirements and repeatable processes, the initiative can expand access for smaller organizations and community partners that otherwise lack technical resources to participate in higher-value diversion pathways.

Trade-offs, Challenges, and Negative Impacts

- **Quality requirements can constrain supply:** Tight contamination standards may reduce the volume of acceptable material at first, requiring stronger partner alignment and iteration.
- **Coordination burden:** The program requires ongoing communication and quality feedback loops. This adds workload but is necessary to avoid rejected loads and downstream failure.
- **Operational variability risk:** Paper streams can vary by source and season. Managing that variability requires continued monitoring, consistent specifications, and documented handling practices.
- **Early-stage economics may favor incumbents:** Until routing and processing pathways are fully stabilized, legacy disposal or low-grade recycling may appear simpler or cheaper in the short term—even if long-term outcomes are worse.

Overall: The initiative strengthens circularity by improving material quality, routing efficiency, and downstream usability—creating environmental benefits through reduced waste and better resource conservation, economic benefits through reduced rework and higher-value diversion, and social benefits through collaboration, safer handling practices, and scalable participation.

- 9. How Stakeholder Buy-In Was Achieved: Explain how the program gained support from key stakeholders (e.g., government agencies, businesses, residents, nonprofits).**

How Stakeholder Buy-In Was Achieved

Stakeholder buy-in was achieved by aligning the program with each group's practical incentives, reducing perceived risk, and building trust through clear specifications and transparent communication. Rather than asking stakeholders to "take a leap," the initiative focused on making participation easy, measurable, and operationally realistic.

1) Clear value exchange for each stakeholder

Buy-in increased once stakeholders saw the program was designed to solve real operational problems:

- Generators benefited from clearer acceptance standards and fewer rejected loads.
- Facility providers/processors benefited from improved feedstock consistency and reduced contamination risk.
- Public and institutional stakeholders benefited from waste reduction and improved circularity outcomes without requiring major behavior change.

2) Specification-first approach (reducing uncertainty)

The program used a "requirements and quality" approach to set expectations early—what qualifies, what does not, and why. This reduced ambiguity and prevented misunderstandings that usually derail collaborations. Having standards up front made it easier for partners to commit because they could evaluate feasibility before investing time and resources.

3) Iterative pilot mindset instead of all-or-nothing commitments

Stakeholders were not asked to commit to full-scale participation immediately. Buy-in was earned through a phased approach:

- Start small with controlled volumes and defined trial periods.
- Review outcomes and lessons learned.
- Expand only after repeatability and reliability were demonstrated.

This lowered the perceived risk and made it easier for partners to participate without fear of long-term obligations.

4) Communication cadence and accountability

Consistent communication helped keep alignment:

- Regular check-ins with partners to confirm scope, timing, and expectations.
- Rapid feedback loops when quality or logistics issues appeared.

- Written summaries and documentation to prevent confusion and maintain accountability.

5) Trust-building through professionalism and documentation

Stakeholders gained confidence because the initiative operated with clear documentation, respect for partner constraints, and a focus on execution. The program emphasized:

- Defined scope of work and deliverables
- Handling and chain-of-custody discipline
- Data sharing expectations and confidentiality norms consistent with research collaborations

6) Shared mission and public-facing relevance

Finally, buy-in was strengthened by the broader mission—reducing waste, improving circularity, and enabling sustainability progress in a way that fits existing systems. Stakeholders could support the work because it was both practical and aligned with environmental goals.

10. Stakeholders’ Perspectives and Dynamics at Play: Highlight collaboration dynamics, challenges, or differing stakeholder interests and how they were addressed.

Stakeholders’ Perspectives and Dynamics at Play

The initiative involved stakeholders with overlapping sustainability interests but different operational priorities, timelines, and risk tolerances. Collaboration required acknowledging these differences early and designing the project so each party could participate without taking on unreasonable burden or liability.

Differing incentives and how they showed up

- Operational stakeholders (material generators, processors, facility operators) prioritized reliability, cleanliness/quality thresholds, and avoiding disruptions to workflow. Their biggest concern was that “sustainability goals” could unintentionally increase contamination, labor, downtime, or costs.
- Technical stakeholders (research/testing partners) prioritized scientific rigor, repeatability, and clear sample handling protocols. Their concern was that inconsistent inputs or unclear procedures could make results unreliable.

- Program/administrative stakeholders prioritized compliance, documentation, and defined scopes to manage reputational and financial risk.

Their concern was ensuring the work was structured, eligible, and defensible if audited or reviewed.

Collaboration dynamics and challenges

- 1) Risk sensitivity and credibility thresholds Some stakeholders required proof of feasibility before committing resources, while others were comfortable supporting early-stage exploration. This created a natural “trust gap” at the start, especially around performance claims, end-of-life handling, and operational fit.

How it was addressed: the work was framed as a pilot with defined acceptance criteria, limited scope, and documented decision gates—so participation did not require blind commitment.

- 2) Timing and coordination constraints

Different stakeholders moved at different speeds (procurement cycles, academic timelines, internal approvals). This created friction when one party needed quick action while another needed formal review.

How it was addressed: project planning emphasized early schedule alignment, written expectations, and fallback options (e.g., sequencing work so progress could continue even if one piece slipped).

- 3) Quality standards vs. cost/effort

Upstream suppliers often prefer flexibility in what they deliver, while downstream processors need tighter specifications to avoid contamination-related costs. This mismatch is common in diverted-material workflows.

How it was addressed: the initiative used a “specification-first” approach with clear acceptance and rejection criteria, plus a feedback loop so suppliers could adjust without losing trust or feeling blamed.

- 4) Scope boundaries and ownership concerns Partnerships involving novel processes can trigger concerns about who “owns” outcomes, data, or credit. Even when everyone is acting in good faith, ambiguity can create tension.

How it was addressed: the collaboration focused on professional norms: clear scope of work, clear data-sharing expectations, and maintaining appropriate confidentiality

practices. When necessary, the team reinforced that the goal was technical validation and operational feasibility—not shifting ownership or creating hidden obligations.

Resulting benefits of addressing these dynamics

By treating stakeholder concerns as normal and predictable (rather than personal or adversarial), the initiative maintained forward momentum. The project became easier to support because it was structured around:

- low operational disruption,
- transparent expectations,
- measurable outcomes,
- and a phased commitment model.

11. Lessons Learned: Share what worked well, what didn't, and recommendations for others seeking to replicate your approach.

N/A our product is patented.