



Webinar: Local Strategies to Curb Waste Sector Methane Emissions & Benefit Communities

Audience Q&A

Below, we provide answers to several questions submitted during RMI's [webinar](#) on April 11, 2024.

- 1. In Bellevue, WA we have a yard waste pickup program. People are encouraged to put food scraps in the yard waste container. Is there any advantage to having a separate food scraps program?*

Adding food waste to an existing yard waste collection program is an efficient and cost-effective way to divert additional organic material from landfills. Many regions already offer year-round, or at least seasonal, yard waste collection. In fact, twenty-one states have policies in place to limit the landfilling of yard trimmings, according to the [U.S. Composting Council](#). Studies show that having customers add food waste to an existing yard waste bin increases participation and the volume of organic waste collected (ex: [Minneapolis](#), [Washington D.C.](#)).

A few things to consider when expanding a yard waste collection & composting program to accept food waste:

- **Minimizing contamination:** Contamination rates for food waste are typically higher than yard waste, due to the plastic materials used in food packaging and containers. This can impact the value and marketability of the finished compost product. Public outreach and consumer education campaigns can help to maximize separation and minimize contamination. In addition, there are post-collection, pre-treatment options that can help address contamination, which may include a combination of bag opening; manual or mechanical sorting using screens, trommels or magnets; or chemical or biological treatment.
- **Permit and operational changes:** Adding food waste may require modifications to a facility's permit as well as to site operations to accommodate higher-moisture food waste, manage odor and vector risks, and adjust for differences in material handling. Some operational changes that may help when integrating food waste include: using smaller windrows, increasing the turning frequency, blending food waste with carbon-rich materials or using covered compost piles or forced aeration techniques.

In sum, keeping yard waste collection separate may protect the quality and marketability of the compost end product. But with adequate infrastructure in place to limit contamination (e.g., through educational campaigns around source-separation and technology/practices to process incoming food waste), co-mingling food and yard waste is an effective, low-cost way to increase the diversion of organic materials from landfills and boost composting production.

Additional resources:

- [Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation](#) - U.S. EPA
- [Municipal Curbside Compostables Collection: What Works and Why?](#) - MIT Department of Urban Studies and Planning
- [Don't Spoil the Soil: The Challenge of Contamination at Composting Sites](#) - The Composting Consortium
- [Emerging Issues in Food Waste Management \(Plastics, PFAS\)](#) - U.S. EPA
- [Composting Food Scraps in Your Community: A Social Marketing Toolkit](#) - US EPA

2. *Could you speak a bit more about work on market development for compost and how the agreements facilitate that development?*

Market development for compost can help ensure the economic viability of an organics recycling project, supplementing revenue from tipping fees.

Policy plays an important role here. There are currently organics diversion laws in place in nine states, which create certainty for organics recycling facilities around incoming feedstock. In addition, some state programs, such as [California's SB 1383](#) and [Washington's HB 1799](#), include procurement ordinances, requiring cities and counties to procure annually a quantity of recovered organic waste products (e.g., compost, mulch) to meet an annual procurement target. Compost can be used for landscaping, roads and highways, and other green infrastructure. Several local jurisdictions (ex: King County, WA; Sacramento, CA; Berkeley, CA; and Denver, CO) have their own local compost procurement policy, and NRDC and Environmental Law Institute have developed a [model local compost procurement legislation](#).

Returning source-separated municipal compost to local farms is another potential end use that can help [meet fertilizer demand](#), improve soil quality and water retention, boost agricultural yields, and sequester carbon. [Incentivizing the application of compost on farmland](#) can help bolster this market. Several states and localities have created programs to incentivize farmers to apply compost (e.g., [California Healthy Soils Program](#)).

Additional resources:

- [State Food Waste Reduction Toolkit](#) - Zero Food Waste Coalition (Harvard Food Law and Policy Clinic, NRDC, ReFED, WWF)
- [Food waste disposal and utilization in the United States: A spatial cost benefit analysis](#) - NREL
- [Composting Policy Resource Hub](#) - Institute for Local Self-Reliance
- [A Toolkit for Incorporating Food Waste in Municipal Climate Action Plans](#) - Environmental Law Institute (ELI)

3. *For composting, what's been your experience with odor management to minimize impact on surrounding communities?*

Proper management practices (e.g., aeration and turning of compost) can help minimize odors at composting facilities. Proactively engaging community members and promptly responding to any odor complaints are critical to managing a successful facility and delivering environmental justice.

Additional resources:

- [Community Composting Done Right: A Guide to Best Management Practices](#) - Institute for Local Self-Reliance
- [Controlling Composting Odors](#) - BioCycle
- [Environmental Justice Principles for Fast Action on Waste and Methane](#) - GAIA
- [Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation](#) - U.S. EPA

4. *Are there good models for earning revenue by attracting investment from waste companies?*

Methane mitigation and organics diversion can create local economic benefits through new jobs, investment, and revenue.

Organics recycling can create jobs and workforce development opportunities in the circular economy at a higher rate per ton than landfills or incinerators. One study found that for every \$10 million invested, [composting sites can support 21.4 full-time jobs](#), while landfilling supports 8.4 and incineration supports 1.6. To provide a specific example, Massachusetts' commercial food waste disposal ban created over 500 jobs and stimulated \$175 million in economic activity in the state during its first two years alone. California's organics recycling law is expected to create thousands of green jobs, generate billions in economic activity and benefits, and protect Californians from immediate and long-term health and environmental impacts. Organic waste processing capacity in California has already increased substantially: the state now has [206 organic waste processing facilities](#) and is building 20 more. The markets for the organic waste

feedstock and end products (e.g., compost, biogas, digestate) are growing and can bring revenue to local governments.

Expanding landfill methane monitoring and implementing landfill best management practices can also create local jobs in methane mitigation, as well as economic benefits through productive use of captured methane, which can in some cases displace more expensive fossil fuels. There are tax incentives that can support investments in landfill methane capture and additional programs to monetize the captured gas (e.g., Renewable Fuel Standard, Low Carbon Fuel Standard).

At the local scale, as Roxanne Wienkes of Dane County, Wisconsin highlighted on the webinar, there are opportunities to attract investment – as they build out their [sustainability campus](#). Solid waste departments can also partner with economic development offices to help grow the local circular economy (ex: [Austin, Texas](#)).

[Community composting](#), which Michael Martinez of [LACompost](#) described on the webinar, is an effective way to ensure the social, environmental, and economic benefits of composting are experienced locally. Community composting is often cheaper and less resource-intensive to set up than larger composting operations and can help improve local soil health, manage stormwater runoff, develop green spaces, support local food systems, and create education and job training opportunities.

Additional resources:

- [Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation](#) - U.S. EPA
- [Food waste disposal and utilization in the United States: A spatial cost benefit analysis](#) - NREL
- [How the US Economy and Environment can Both Benefit From Composting Management](#)
- [Zero Waste & Economic Recovery](#) - GAIA
- [Jobs & Economic Benefits of Zero Waste](#) - eco-Cycle

5. *I wonder if anyone could speak to meeting these challenges in highly isolated/rural locations, and whether there are resources in the playbook for those settings?*

In rural communities, where dedicated collection routes may not be feasible, creating food scrap drop-off locations and supporting [on-farm, community, or backyard composting](#) infrastructure can help keep organic waste out of landfills and deliver local environmental, economic, and social benefits. Implementation of Vermont's Universal Recycling Law has [lessons learned for rural communities](#).

In addition, recognizing [compost \(or soil carbon amendment\) as a conservation practice](#) can help farmers, ranchers and forest stewards apply for financial assistance. Several

states and localities have created programs to incentivize farmers to apply compost (e.g., [California Healthy Soils Program](#)). Partnerships with local farms to convert surplus organic into [animal feed](#) is also a good option for rural communities looking to reduce organic waste.

Additional resources:

- [State Food Waste Reduction Toolkit](#) - Zero Food Waste Coalition
- [Composting Policy Resource Hub](#) - Institute for Local Self-Reliance (ILSR)
- [On-Farm Composting Fundamentals](#) - ILSR
- “Electricity Options for Remote Location or Low Landfill Gas Flow” LMOP [Webinar](#) - U.S. EPA

6. Is it easier to get the composting facilities permitted by co-locating them at the landfills?

Co-locating municipal or commercial composting facilities at landfills is a great way to take advantage of the space and infrastructure available, while potentially reducing siting and permitting obstacles and associated costs (e.g., [Lee County, FL](#)). While it varies by region, some states have specific incentives for the co-location of compost facilities at landfills (e.g., [Texas](#) rebate program).

For community composting, common locations include schools, farms, community gardens, and parks – and there are often [permitting flexibilities](#) for these small-scale composting facilities. Community composting is often cheaper and less resource-intensive to set up than larger composting operations, as it requires [less land and fewer materials](#).

Additional resources:

- [State Food Waste Reduction Toolkit](#) - Zero Food Waste Coalition
- [Composting Policy Resource Hub](#) - Institute for Local Self-Reliance (ILSR)
- [Community Composting](#) - U.S. EPA

7. Can any of the speakers speak more on edible food recovery efforts in their respective jurisdictions?

Local governments can help support edible food recovery by assessing and expanding food rescue system capacity and addressing policy barriers to safe donation of food. This could include facilitating partnerships between potential food donors, rescue organizations, and hunger relief organizations or providing grants for food rescue-related infrastructure. The U.S. EPA [Excess Food Opportunities Map](#) supports nationwide

diversion of excess food from landfills by identifying potential generators and recipients of excess food in the industrial, commercial and institutional sectors.

Examples of food donation in local climate action plans: [Charleston, S.C.](#); [Dallas, TX](#); [Philadelphia, PA](#); [Detroit, MI](#)

Additional resources:

- [Tackling Food Waste in Cities: A Policy and Program Toolkit](#) - NRDC
- [A Toolkit for Incorporating Food Waste in Municipal Climate Action Plans](#) - Environmental Law Institute (ELI)

From Columbus, Ohio: The City of Columbus, is working with community non-profits Columbus Food Rescue and Local Matters. In 2023, they rescued over 1 million pounds of food. From making connections with restaurants and food waste generators to educating City's Health Inspectors on how food rescue operations work, these efforts are just starting to expand. The city is seeking additional funding and support to bolster this operation

8. I'm a zero waste committee for my local independent school district. Through this I heard that schools with recycling and composting are considering removing these for issues such as the lack of staff resources to implement. Do you have any tips or tricks for helping implement these?

Schools are key targets for food waste reduction given the opportunity to educate students on food waste, while conserving public funds. State and local governments can support school food waste reduction initiatives (e.g., [Rhode Island](#), [ELI toolkit](#)), helping to advance food waste audits, share tables, food donation, and composting in schools.

In terms of staff capacity, drawing from [programs and guidance](#) already proven in other schools can help ease implementation. In addition, food waste reduction initiatives can generate significant savings for school districts (e.g., WWF found that if schools nationwide achieved a food waste 3% reduction, our country could save [\\$69 million](#) each school year on food and milk otherwise destined for the waste stream), which could more than cover additional staff capacity needed to implement these programs.

Additional resources:

- [State Food Waste Reduction Toolkit](#) - Zero Food Waste Coalition
- [A Toolkit for Incorporating Food Waste in Municipal Climate Action Plans](#) - Environmental Law Institute (ELI)
- [Reducing Food Waste at K-12 Schools](#) - USDA
- [Fighting Food Waste in Schools](#) - WWF

9. *What actions can state government take to support success by local government in this sector?*

While waste management is handled locally, state governments play an important role in setting guidelines and providing incentives to curb methane emissions.

There is growing momentum around state rulemakings to control landfill methane, as governments strive to address the climate crisis and meet their state-wide climate targets. [Maryland](#), [Oregon](#), and [Washington](#) have proposed or finalized strong landfill methane control rules in the past three years, and [California](#), whose landfill methane regulation has been on the books since 2010, is now [considering improvements](#) to its once nation-leading standard. The state rules make several improvements to landfill design, operational, monitoring, and reporting requirements to increase methane capture and reduce fugitive emissions. Maryland's landfill rule (COMAR 26.11.42), finalized in June 2023, is projected to deliver an estimated 25-50% reduction in landfill gas emissions from covered landfills when fully implemented, according to estimates from the Maryland Department of Environment (MDE). Other states (e.g., Colorado, Michigan, Pennsylvania) are also considering updates to their landfill air regulations.

In addition to updating air regulations, states can help build emissions transparency and expand leak detection and repair by leveraging new monitoring technologies. For example, environmental agencies in [California](#) and [Pennsylvania](#) worked with third-party aerial monitoring providers to survey for methane leaks and alerted landfill operators of large detected plumes. Operators took voluntary action to locate and mitigate the leaks. Overflights conducted by the Pennsylvania Department of Environmental Protection, in partnership with Carbon Mapper, achieved [a 37% reduction in observed methane emissions from landfills](#).

States can also play a role funding voluntary methane monitoring and abatement at municipal landfills, above and beyond minimum regulatory requirements. For example, Washington State has a [landfill methane emissions reduction grant program](#).

On the organic waste prevention and recycling side, there are also many opportunities at the state level. The Zero Food Waste Coalition's [State Toolkit](#) outlines key strategies including: organic waste bans, protections and incentives for food donation, permitting and zoning guidelines for composting and anaerobic digestion facilities, incentives for organics processing infrastructure, compost procurement and application policy, and date labeling, among other policies. Nine states have policies in place as of 2023 to limit organic waste disposal. Connecticut, Massachusetts, New York, Rhode Island, New Jersey, Maryland, Vermont, Washington, and California have all adopted state organic waste bans in the past decade.

Additional resources:

- [State Food Waste Reduction Toolkit](#) - Zero Food Waste Coalition

- [Testimony at U.S. Senate Hearing *Avoiding, Detecting, and Capturing Methane Emissions from Landfills*](#) - RMI

10. Thank you for the inspiring examples. However, I am unsure how those ideas could be used addressing methane emissions from non-municipal landfills, especially in communities that rely on tipping fees to balance their budgets.

While it is easier to implement best management practices for methane capture at municipally owned and operated landfills, there are still opportunities to advance best practices at non-municipal landfills. Local governments may adopt local laws regarding MSW landfills within their boundaries – or the host community can work to include enhanced methane capture requirements in contract negotiations with the private landfill operator. When developing a [climate action or solid waste plan](#), a city or local government’s sustainability staff can also engage the private landfill operator processing the jurisdiction’s waste to establish joint targets around methane recovery and destruction.

There are several reasons the private landfill operator may be willing to adjust their operational practices to reduce fugitive emissions. For one, increasing methane capture could mean more revenue for a landfill with an energy project. And importantly, efforts to improve landfill methane capture can also reduce odors and harmful co-pollutants released alongside the methane, thus improving community health and relations.

However, this question also underscores the need for policy to raise the floor around methane capture across landfills. The U.S. Environmental Protection Agency regulates municipal solid waste landfills under the Clean Air Act and has broad authority to set design and work practice [standards that achieve emissions reductions](#). The agency is statutorily required to [revisit its Section 111 standards for municipal solid waste landfills in August 2024](#), and should seize this opportunity to develop an [ambitious framework](#) that reflects the latest best practices in methane monitoring and control, while advancing organics diversion. At the same time, state agencies can update their landfill air regulations to better control methane emissions across landfills, as described above.

Additional resources:

- [Deploying Advanced Monitoring Technologies at US Landfills](#) - RMI, WasteMAP
- [Key Strategies for Mitigating Methane Emissions from Municipal Solid Waste](#) - RMI
- [Waste and Local Control](#) - ILSR

11. *For those that have started community drop offs, what are the contamination levels? Do you have any data that you can provide? Are your drop offs "food only"?*

Contamination, especially with plastics, is a challenge for composting sites and can impact the safety, value, and marketability of the finished compost product.

As discussed in question 1, public outreach and consumer education campaigns can help to maximize separation and minimize contamination (ex: [King County, WA](#)).

In addition, there are post-collection, pre-treatment options that can help address contamination, which may include a combination of bag opening; manual or mechanical sorting using screens, trommels or magnets; or chemical or biological treatment. Furthermore, working with packaging brands and other upstream stakeholders can help ensure proper labeling to avoid confusion around "compostable" materials.

Additional resources:

- [Composting Food Scraps in Your Community: A Social Marketing Toolkit](#) - U.S. EPA
- [Guide to Contamination in Food Scrap Bins](#) - New York State Pollution Prevention Institute
- [Don't Spoil the Soil: The Challenge of Contamination at Composting Sites](#) - The Composting Consortium
- [Emerging Issues in Food Waste Management \(Plastics, PFAS\)](#) - U.S. EPA

From Columbus, Ohio: Columbus's contamination levels have been relatively low. Since participants have to transport their material to these sites, they tend to follow the rules and take the time to ensure the correct materials are going in the bins. The City's drop-off sites accept all edible foods and BPI certified compostable items.

- More info on them can be found at columbus.gov/foodwaste

12. *Given the challenges of source segregation, particularly of food waste, what percentage of organics do you believe can be diverted in this way?*

With consumer education, adequate infrastructure, and enabling policy, high rates of organics diversion are achievable. For example, some U.S. cities with long-standing diversion policies, such as San Francisco, have diverted more than [80 percent](#) of materials discarded from the landfill. [Europe and East Asia](#) also provide models of high organics diversion rates, thanks to separation, collection, and treatment policies.

There are several strategies to boost participation in organics diversion, such as pay-as-you-throw fee structures, adjustments to waste collection schedules, and consumer awareness campaigns, as discussed in this [EPA report](#), as well as [enforcement mechanisms](#), which states like California are phasing in.

However, even with the most successful organics diversion programs, some organic waste will likely continue to be landfilled, generating methane for years to come. This underscores the need for tight landfill emission controls for the organic waste that slips through the cracks.

Additional resources:

- [Composting Food Scraps in Your Community: A Social Marketing Toolkit](#) - U.S. EPA
- [Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation](#) - U.S. EPA

13. The cities of Golden and Boulder, CO have recently made their green/yard waste requirement much more stringent, making commercially biodegradable paperware/cutlery illegal. Other composters in the region still are fine with the old regime - what can be done to improve composters' ability to handle a wider range of materials?

This question raises the need for consistent labeling guidelines around “compostable” products. [Labeling standards](#) can help minimize confusion for consumers and businesses recycling their organic waste, while preserving the quality and marketability of the compost end product.

In addition, as discussed above, [public outreach and consumer education campaigns](#) can help to maximize separation and minimize contamination (ex: [King County, WA](#)). And there are post-collection, pre-treatment options, such as bag openers, manual or mechanical sorting through screens, trommels, or magnets, and chemical or biological treatment.

However, contamination risk in compost should not perpetuate the continued landfilling of organics. Another option is to have separately graded and marketed products. For example, a facility could have one compost product that is primarily made from yard waste, and another compost product made from source-separated municipal organic waste and yard waste (e.g., [Prince George's County Leafgro vs. Leafgro GOLD](#)).

Additional resources:

- [USCC, BPI Release Compostable Product Labeling Legislative Guidelines](#) - BioCycle
- [Composting Food Scraps in Your Community: A Social Marketing Toolkit](#) - U.S. EPA
- [Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation](#) - U.S. EPA