



## Introduction

*Establishing an industrial-scale composting facility is an expensive undertaking. From reports of compost manufacturers interviewed for this paper, acquiring and preparing the land, purchasing and installing the equipment, and securing the necessary permits can require anywhere from \$500,000 to \$2,000,000. For most people who are interested in opening a compost facility, these costs are prohibitive. Normally, entrepreneurs who face high up-front costs when starting new businesses can seek funding through bank loans or, depending on the type of enterprise, venture capital investment.*

*For compost manufacturers, traditional bank loans are often not an option: many banks do not understand the business model or biological process of composting. Their confusion, combined with the hefty price tag and lack of credit history associated with emerging compost operations, means that many banks reject loan applications from fledgling composters out of hand. Government grant programs also tend to be risk-averse, so they gravitate to relatively mature businesses, and often require matching funds to share the risk burdens with the grant applicants. Venture capital firms sometimes show a greater tolerance for risk and are willing to give compost businesses a chance, but those investors expect generous equity shares or robust returns over a short time span, either of which can put undue pressure on new businesses. So even before beginning to accept feedstocks and test out their recipes, composters must already be creative and resourceful: most commercial compost manufacturers must pull together a variety of funding sources to get their facilities up and running.*

*This white paper will examine the different sources of funding, supported by case studies to showcase the advantages and drawbacks of each option. See Appendix A for a pros and cons overview.*

## Common Types of Start-Up Financing

### EQUITY

Some aspiring compost businesses have sources of significant seed money, but not enough to cover the entire cost of starting a new operation. Personal sources of this type of investment include entrepreneurs' own savings, loans from family members and friends, and crowd-funded money from platforms like Kickstarter or Honeycomb. Institutional equity investment can take the forms of grants from non-profit organizations, equity shares claimed by venture capital firms, or classic loans from banks or credit unions. Each source of equity funds takes a share of the profits that is proportional to its ownership in the business, though repayment of the initial principal of the loan is not always necessary. To earn equity funding, new entrepreneurs must demonstrate clear revenue potential—including market analysis and descriptions of feedstock sources—through a comprehensive document, such as a business plan.<sup>1</sup>



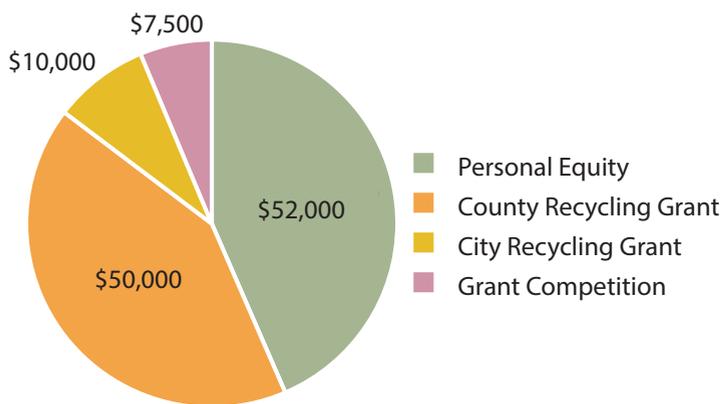
Hoffman Composting screening, Johnson City, TN

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

### Sources of Initial Financing, Dirt Hugger



Dirt Hugger, Dallesport, WA



## Case Study: Dirt Hugger

Tyler Miller and Pierce Louis of Dirt Hugger in Dallesport, WA each had \$26,000 to bring to the table when they sought to create their compost business in 2010. Together as business partners, they were halfway to their initial financial goal of \$100,000 for a 10,000 ton-per-year (TPY) site they called the Black Gold Mine. In their first round of fundraising, they garnered \$123,000 in total, including \$50,000 from a Tri-Counties Recycling Grant, \$10,000 from their Port of The Dalles site's landlord, and a \$7,500 award from a one-off grant competition called Myoo.

After four successful years in business, Miller and Louis began a second round of fundraising, with the goals of \$500,000 and a 35,000 TPY site with an aerated floor, at a new location in Dallesport, WA. Their funding breakdown was again from multiple sources: \$10,000 from Klickitat County Solid Waste, \$25,000 from Klickitat County, \$50,000 from a USDA Rural Development grant through the Port, \$65,000 from Kickstarter, and \$300,000

from a traditional bank loan, made possible by a demonstrated track record up to that point.

In their third and final round of fundraising in 2019, they set the goals of \$1.4 million and 65,000 TPY to create a large-scale building on their site. At that point, nine years and hundreds of thousands of tons of compost later, the bank was convinced the risk was warranted in awarding them the total amount they sought.

Louis and Miller were candid in their reflections on the benefits and challenges of each of their financing vehicles. Concerning grants, they recommended starting at the local level and moving up to city and county solid waste and recycling agencies and the USDA and EPA at the federal level, as well as always keeping an eye out for serendipitous grant competitions that might originate in unexpected sectors or places. They appreciated the "free money" that the government provided, but cautioned that obtaining government grants is time-consuming in satisfying reporting requirements. With respect to personal

debt, they enjoyed moving quickly and easily as well as having no new partners to manage, but recognized that the future interest and principal repayment will cut into their available cash for transactions. With the Kickstarter campaign, they celebrated the great marketing and leveraging of the customer base for "free" money, but they cautioned that the net take after Kickstarter's commissions and fees was reduced, and it was draining to provide appreciative feedback to each individual contributor.

Dirt Hugger has consistently prioritized maintaining control of their business by avoiding any outside equity. They reported that this strategy means they relish their managerial freedom, but the tradeoff is slower growth. For other compost businesses, Miller and Louis made the following recommendations: use equipment debt financing for growth; save cash for long-term deals; buy new equipment if it will be used daily, and choose used equipment for items used intermittently; and avoid the risks of leasing.

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## DEBT FINANCING

Debt financing is a traditional form of financing for new businesses, encompassing loans from banks, credit unions, and savings institutions. This funding source generally requires owner equity of 20-30%, pledged assets from the business owner(s), detailed documentation (including references, credit scores, a business plan, and financial statements), signed feedstock agreements (i.e. letters of intent or contracts) that are diversified across multiple customers, and potential requirements for the borrower to demonstrate a 1.5x cash flow to debt ratio. Not only are these requirements somewhat onerous, but some financial institutions do not understand the business model of composting, and often do not entertain funding requests from compost manufacturers. Even so, determined compost entrepreneurs can access this funding, and some have done so.



### Case Study: Hoffman Composting

Joe Hoffman of Hoffman Composting in Johnson City, Tennessee worked with a credit union when starting his company in 2016. He bought the property for his site using a mortgage loan from a credit union, and funded the site preparation and equipment with a home equity line of credit. Hoffman has experienced mixed effects from his chosen blend of financing: "The benefit of doing it that way was that I retained 100% ownership in the business. The downsides are that the debt payments have been a big drag on my progress, the stress of literally betting the house on this has been significant, and the business started (and continues to function) with an amount of capital that is limiting."<sup>2</sup>

In 2017, Hoffman Composting also managed to secure a one-time \$20,000 matching grant from the Tennessee Department of Environmental Conservation to purchase an arched metal Quonset roof, which though heavy was useful due to its flexibility, Hoffman said. This improvement elevated his operations from the simple setup

of pad and tarps from which he was working previously. Hoffman planned to apply for additional grants once he had demonstrated how well his business had grown using the funds from the first award, but the grant initiative ended abruptly within a year.

Hoffman also has found widespread skepticism or even hostility towards composting among the Tennessee public following catastrophes at early, high-profile compost projects in the state, including a yard waste facility that faced a fire so bad a nearby hospital had to be evacuated. He underscored the importance of the compost community educating the public through speaking engagements, festivals, and facility tours in order to address public concerns, and explain how training, good technology, and other sound management practices can prevent issues such as odor and pests. Hoffman sees hope for the future of Tennessee composting in the determined, optimistic attitudes of officials like the public works head and solid waste manager at local administrative meetings.



Hoffman Composting, Johnson City, TN

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## GOVERNMENT FINANCING: GRANTS

Government financing for composting infrastructure can take many forms, including tax incentives for equipment or property, grants, loans through third-party intermediaries, bond issuance (for public sector projects), repayment guarantees on bank loans, and public-private partnerships.

Grants from state agencies centered on the environment and the conservation of natural resources are among the most common. These grant programs are normally 50:50 matching programs, as agencies spending taxpayer money are risk-averse in their investments and thus lean towards established businesses instead of brand-new ventures.

The sources of the funds behind government recycling incentive programs tend to be either fees on the sale of specific items—like tires, white goods, or electronic devices—or, most commonly, waste disposal surcharges. These latter fees are levied as extra “tipping fees” when waste is delivered to a landfill, and the levels of the fees vary widely around the nation and even within a single given state or county. In the US, 34 states have state-level waste disposal surcharges (see Appendix B), 8 states have active grant programs that fund compost facilities, and 14 states offer compost operations incentives in the form of tax credits or exemptions (see Appendix C). Since 2010, state agencies have disbursed over \$25,000,000 to compost facilities and programs (see Appendix C).



### Case Study: City of Lincoln

In Nebraska, the Department of Environment and Energy (NDEE) offers a program called the Waste Reduction and Recycling Incentive Grant Fund. The City of Lincoln Solid Waste Management Division won a grant through this program in 2021 for \$355,386, using the money for electrical work and compost pad repairs to allow the use of a static aeration system. With a state landfill ban for organics in place from April 1st to September 30th every year, Waste Diversion Coordinator Willa DiConstanzo aimed to do what needed to be done to fulfill the ban, which meant staying abreast of the compost scene throughout Nebraska. For example, her first order of business when she began in her current position in 2018 was to ascertain how much the facility should charge for its finished compost. The price at the time was \$10 per cubic yard (cy), but when she called another facility in Omaha and realized they were charging \$15/cy, she raised the price at the Lincoln facility to match.

DiConstanzo’s motivation for raising the price at the Lincoln site was to work in parallel with, instead of competing against, other composting facilities in the area. She spoke to the goals that all industrial composting facilities share: divert waste from landfills, and process any waste that’s produced in the most productive way. DiConstanzo also took heart in noting that the interest in compost in Nebraska is greater than ever



City of Lincoln, NE

before, a phenomenon she partially attributed to grant money being awarded to successful compost operations. The Lincoln facility’s support of the greater commercial compost ecosystem in the state, along with its careful financial and operational management, made this entity attractive for NDEE’s public investment.

DiConstanzo was adamant about the need for public-private partnerships, known as P3—for government to collaborate with the private sector. She insisted, “If a government doesn’t like public-private partnerships, they need to take a hard look at themselves! You can’t do it alone.” Because of the need for marketing the finished compost, it’s often more efficient for public composting facilities to collaborate with private firms. Once a compost manufacturer is consistently selling finished compost on the market, the business can use the revenue gained from those sales to pay for ongoing operations, freeing them from the need to apply for grant money to serve that purpose.

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## GOVERNMENT FINANCING: PUBLIC-PRIVATE PARTNERSHIP

Formally, public-private partnership (P3) means a government division and a private firm or group of firms partner in the ownership and/or operation of a business. The P3 model is frequently found in the world of composting. P3 structures vary in the degree of ownership shared between the municipality and the private party or parties; short-term service formats for private firms working with government bodies include contract, concession, lease, and management. Over the longer term, service models include:

- having the private entity (entities) design, build, and operate the facility, but not own it;
- private firm(s) doing all of the above as well as providing financing;
- private firm(s) building and fully owning a facility, and then eventually transferring its ownership back to the government;
- private firm(s) receiving government funding and then taking over the entire rest of the construction and ownership roles.

See current opportunities for public investment in private composting facilities reflecting many of these different forms of P3s in Appendix C.



### Case Study: Ohio Department of Rehabilitation and Correction

Ohio provides an interesting example of a P3 from their Recycling and Litter Prevention Program Community and Litter Grant, available to qualifying nonprofits and government entities. In 2018, the Ohio EPA awarded the Ohio Department of Rehabilitation and Correction \$182,147 for the purchase of an in-vessel composting unit and scales. In a long-defunct program, the ODRC had inmates work without pay in small gardens on prison sites. About five years ago, the ODRC realized they should utilize these land assets, and they retrofitted the old tracts as eight different farms and training centers for both offenders and regulators. For the hauling and processing of the compost generated at these sites, the ODRC relies on private firms, an arrangement that is intended to stay in place for many years to come. The state took on the responsibilities for making the necessary permitting changes, paying offenders' salaries, and hiring supervisors for offenders, while the partners agreed to provide the mobile equipment for shredding and collection.



Ohio Department of Rehabilitation and Correction compost site, Lima, OH

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## GOVERNMENT FINANCING: BONDS

The World Bank provides a succinct overview of the final relevant form of government financing for new composting facilities: bonds.

“Where municipalities are unable to fully fund their own operations, they may also seek to raise money by issuing bonds. Municipal bonds are debt obligations issued by a public entity to fund public facilities and infrastructure. In structure, bonds are similar to traditional loans but diversify risk to multiple stakeholders, the purchasers of the bond. Bonds typically follow a structured interest repayment schedule and may allow for more favorable interest rates than a common bank loan. Advantages of public bonds include favorable rates or exemption from national taxes, a longer maturity time period, and lower interest rate. Disadvantages include the transaction costs, administrative hassles associated with issuance, and a need for proven creditworthiness to potential buyers. To achieve

efficiency and scale, bonds for composting projects may be issued as part of a larger public financing project, of which composting is one component.”<sup>1</sup>



### Case Study: Hawaiian Earth Recycling

The 2016 World Bank report provides an example of a bond-financed composting project in Hilo County, Hawaii, funded at \$10.6 million. It details that a “private contractor, Hawaiian Earth Recycling, will collect and process green waste and in turn determine the price at which to sell compost to the public,” and “[m]ulch, which is also produced, will be given away for free to residents.” After delays while the environmental assessments were completed, feedstocks were assured, and the convenience of the location was verified,<sup>3</sup> the facility officially opened in 2021. With the area landfill near total capacity, this new capacity could not come soon enough.

## Continuing Operational Financing

### OWN SOURCE REVENUE

Once a compost manufacturing operation is fully viable, it should be producing consistent revenue from the sale of its finished compost. With feedstocks and bulking agents as inputs and composting processes as the main activities of the business, the output of a composting facility should be finished compost that is headed to market. Successful sale of finished compost by manufacturers requires demand for compost in the local area at a reasonable and achievable price. Compost producers can also diversify their revenue by selling other outputs, like recyclables, biogas, training, and more.



### Case Study: Pitkin County

A brief example of this vital business practice comes from the Pitkin County Landfill in Colorado, which runs a self-supporting program with a profit of \$80,000 per year. There is healthy demand for the finished compost in the surrounding area because of poor mountain soils. Like many of the prior examples, this compost facility relied on grant funding in past years. In 2016, when the Pitkin County Landfill was already processing 12-13,000 tons of feedstock annually, the facility received a grant from the Colorado Department of Public Health and Environment’s Resource Recovery Economic Opportunity (RREO) program for \$201,765 to buy and distribute counter-top bins and buckets and outdoor

bear-proof bins and dumpsters, educate citizens about their use, market the collection program, and purchase a bagger machine to enable the sale of finished compost to the public.

Cathy Hall of the Pitkin County Landfill noted that RREO was much easier to apply for than a federal grant, adding, “We’re really proud of [the facility]! We’re the second-largest composting facility in Colorado, which is a big deal because we’re not very big.” At 7,600 feet above sea level, the air is so dry that the landfill uses static non-aerated piles with no turning or touching, and Hall expressed satisfaction that the landfill doesn’t need “fancy technologies or fancy systems” to make composting work well in its context.



## Emerging Start-Up Financing Models

Although compost businesses do succeed in creatively funding their enterprises through various routes, it is always worth looking around the corner for novel financing vehicles.

### GOVERNMENT: GREEN BONDS

Within the world of bonds, a growing sub-type is the green bond. The difference between green bonds and regular bonds is green bonds' explicit commitment to financing projects that help protect the environment or fight climate change. Green bonds saw their biggest year ever in 2020, reaching \$290.1 billion sold, with Europe fielding the largest portion at 48% or \$156 billion and North America coming in at \$61.5 billion. North America will likely step up its involvement quickly under US President Biden's administration, too.<sup>4</sup>

One example of a green bond is the Conservation Fund Green Bond, which provides forest and river conservation as well as carbon sequestration.<sup>5</sup> Whereas green banks—key players in the Infrastructure Investment and Jobs Act passed by the Senate in August 2021—are publicly funded sources of capital deployment for sustainable investments, green bonds are a “capital-raising mechanism [emphasis added] that a wide range of institutions could use.”<sup>6</sup> In other words, green banks invest existing money in shovel-ready projects, while green bonds allow any company to borrow money to finance a proposed future project.

### OUTCOMES-BASED FINANCING

When an entrepreneur seeks financing for a new business, the central question that requires an answer is, How will this business make a profit? Profit is determined by revenue and costs: how much money the business will earn when it sells its goods or services, minus the operating costs of running the firm. What is not incorporated in this classic definition of profit is the idea in economics of externalities, or the impacts that a business has on other parties besides itself that are not reflected in the value of the goods or services produced. Some firms have negative externalities, like air or water pollution from factories or noise and traffic from construction sites. Industrial composting facilities are an example of a business with strong positive externalities: by keeping organic waste out of landfills and processing it into useful soil products, compost businesses both nurture soil fertility and protect the environment from the harmful methane emissions produced by organics that are left to rot in anaerobic contexts. While compost manufacturers make money from selling finished compost to end users, compost producers are not paid any extra for the environmental benefits their businesses produce for all of society.

Similar to how green bonds are providing an outlet for investors to support eco-friendly ventures, there is another growing form of financing dedicated to helping triple-bottom-line businesses get established and flourish. This

model is called outcomes-based financing. According to Matt Lindsay, head of marketing and operations at leading outcomes-based financing industry firm Quantified Ventures (QV), this financial route works as follows:

“Outcomes-Based Financing provides up-front capital for promising programs and infrastructure, either to pilot a new approach whose performance is viewed as uncertain or to scale up solutions that have been tested on a smaller scale. In its most basic form, private investors participating in an outcomes-based financing model pay the upfront costs for deploying these environmental, health, or social solutions. Following deployment and program evaluation, the “payor” – the public agency or private institution that benefits from these solutions – makes a repayment to investors linked to the achievement of agreed-upon outcomes of the program, such as avoided stormwater runoff.”

Compost manufacturing could be a suitable candidate for outcomes-based financing due to its powerful environmental benefits, high startup costs, and consistent subsequent returns over time. If QV accepts a client, they charge \$90,000 to evaluate the business plan and create a contract to ensure loan repayment: then, QV provides all of

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

the funds needed to get the enterprise up and running. That means that if a compost entrepreneur could convince a firm like QV to take them on, they would only need to come up with \$90,000 up front, instead of \$500,000 to \$2,000,000, which compost manufacturers interviewed for this paper quoted as the total cost of getting land, equipment, and permits. In other words, the potential of the outcomes-based financing model is that many more aspiring compost producers could afford to start new compost facilities.

One example of QV's outcomes-based financing work is an agriculture project called the Soil and Water Outcomes Fund, currently taking place in the Chesapeake Bay watershed, Illinois, Iowa, and Ohio. In many agricultural areas, field runoff can pollute waterways with sediment and nutrients like phosphorus and nitrate that are applied in excess to crops. Damages from that pollution include destruction of aquatic habitats, loss of sources of drinking water, higher costs of water treatment, and crowding out of other governmental funding priorities as municipalities are forced to upgrade their water and wastewater treatment plants to handle the increased nutrient levels. QV's subsidiary ReHarvest Partners is partnering with the Iowa Soybean Association's subsidiary AgOutcomes to provide farmers with financial incentives to "implement conservation practices that generate verifiable environmental outcomes like water quality improvement, soil carbon sequestration, biodiversity and habitat protection, and flood mitigation, while at the same time improving economic and ecological resilience for American farmers." By combining multiple environmental outcomes in a single transaction, each beneficiary can pay for the specific outcomes they value, rather than the entire cost of implementing the program. Compared to the existing "pay for practice" conservation approaches, this scheme is both more cost-effective for

beneficiaries and more lucrative per acre for participating farmers.

In its first year, the Soil and Water Outcomes Fund gave Iowa farmers implementing conservation practices \$35-40 per acre across 9,500 acres, yielding cleaner air and water through 6,447 metric tons of carbon sequestered (like taking 1,393 cars off the road for a year), 170,000 lbs of nitrogen reduced (41% median reduction from typical loading rates), and 14,250 lbs of phosphorus reduced (67% median reduction). In 2021, the fund will expand to more than 100,000 acres of cropland. QV believes "this outcomes-based model of delivering verifiable environmental impact through an innovative public-private partnership between investors, farmers, and outcome purchasers is a scalable and replicable model that can be expanded to watersheds across the United States."

If it works for large-scale agriculturalists, why not industrial compost manufacturers too? Outcomes-based financing holds serious promise for compost facility start-up funding in the next decade. Stand-alone compost manufacturers could apply for outcomes-based financing services by themselves, or organizations like the US Composting Council could collaborate with firms like QV to raise large funds like the Soil and Water Outcomes Fund all at once, which could then be disbursed to qualifying individual compost manufacturers. As Lindsay explained, "an outcomes-based fund... would provide subordinate debt to facilities across the country and help de-risk other loans/investments. The payback terms could be linked to achievement of certain food waste reduction/compost volume outcomes." With such high start-up costs, reliable long-run returns, and potent environmental benefits tied to opening a new compost facility, the time is now to investigate the potential of outcomes-based financing for compost manufacturing.



## Recommendations

Following many methods researched and interviews held with diverse compost manufacturers, some solutions to expand compost facility funding presented themselves. The following recommendations can help the industry, advocates, and individual commercial composting companies to increase their access to and success with business funding mechanisms.

### GOVERNMENT AGENCIES

- Granting agencies should create and maintain on-going relationships with compost grantees for more effective and metric-based results that can lead to continuous and growing programs.
  - Agencies give money, technical assistance, and advice to composters but rarely follow up with them, according to these interviews. Maintaining communication before, during, and after awarding a grant yields actionable feedback about business performance and program efficacy. Data flowing from this dialogue can also be used to argue for expanding impactful programs.
- Government agencies should dedicate more resources to frequent check-ins with compost businesses about their financial needs to provide timely, helpful resources.
  - Often, compost manufacturers are so busy managing their complex businesses that they have difficulty finding time to keep up with information about new funding or training opportunities. Agencies can be valuable clearinghouses of insights from industry, government, and academia. Long-time agency employees also preserve institutional memory and help balance input received from a wide variety of stakeholders.
- Government regulators and those with oversight in solid waste management should monitor policies crafted by elected officials to ensure compost-related developments are addressed.
  - Agency officials have unique insight into behind-the-scenes conversations among policymakers and bureaucrats. These individuals can pass on this information to the right people at the right time—for example, informing USCC chapters when valuable compost incentive programs are at risk of being cut, or letting compost businesses know when exciting programs are being introduced. Government employees can help outside advocates understand the internal dynamics behind public-facing initiatives and announcements.

### USCC CHAPTERS

- These groups should be the watchdogs and mouthpieces regarding state composting financing vehicles.
  - USCC chapters can serve as public advocates for composting at the state level. Whether this means proposing new compost financing programs, suggesting new ways of administering existing ones, or defending successful programs from being stopped during periods of austerity or budget cuts, there are multiple options for USCC chapters to have an influential voice. Each USCC chapter can also help ensure the programs in its state reflect the particular landscape and priorities of commercial composting in that locale.

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## USCC NATIONAL LEADERSHIP

- USCC can lead by providing industry-informed resource sheets for aspiring compost manufacturers to educate banks and other financing entities.
  - Many compost entrepreneurs report that banks have a hard time understanding their business models as well as the core processes of composting. USCC should solicit information from its large network of compost manufacturers and other stakeholders to produce an industry-informed packet of resources that compost start-up entrepreneurs can take to banks. Beyond detailing the required financial documentation, this packet should explain both the science of composting and the strategic linkages between feedstock sources and final markets. Bank employees should also be consulted in order to ensure that the information is presented in a maximally accessible manner for the banking audience.
- Develop outcomes-based financing as a new funding option for compost operations.
  - Outcomes-based financing represents the most exciting new opportunity for funding compost operations on the horizon. USCC should investigate this financing vehicle and help pilot a few composting projects under this model to see how they perform. If initial pilots are successful, USCC could even help raise a large nationwide fund to inject capital into multiple compost facilities at once, instead of working one at a time.

## INDIVIDUAL COMPOSTERS

- Individuals should research state-level business funding opportunities such as those in Appendix B and Appendix C.<sup>89</sup>
  - States are increasingly recognizing both the importance of composting to the circular economy and the need that composting businesses have for grant money. Appendix B lays out the waste disposal surcharge laws and relevant fund applications by state; Appendix C provides details of actual grant awards and other financial incentives offered by states since 2010. Composters should contact the relevant parties within their states to identify opportunities for financing and partnership at the state level.

# Financing Industrial Composting Facilities: Challenges and Opportunities



US Composting Council®

## Author Bio

Laurel Cohen is a Master's of Environmental Management candidate at Duke University's Nicholas School of the Environment, concentrating in environmental economics and policy. Laurel is passionate about food and agriculture and appreciates the incredible ability of compost to transform waste into rich, useful products and materials. Laurel got her B.A. in Economics from Yale University and grew up in Central Florida, where she enjoyed gardening all seasons of the year.



## References

- <sup>1</sup> Kaza, Silpa, et al. Sustainable Financing and Policy Models for Municipal Composting. World Bank, Washington, DC, Sept. 2016. DOI.org (Crossref), <https://doi.org/10.1596/26286>.
- <sup>2</sup> Hoffman, Joe. "7 Steps to Start Your Compost Business." Compost Business, <https://www.compostbusiness.com/7-steps-to-start-your-compost-business/>.
- <sup>3</sup> Rischar, Haley. "Anticipated Hawaii Compost Facility on Hold amid Food Scrap Shortage." Waste Today, 29 Oct. 2020, <https://www.wastetodaymagazine.com/article/hawaii-compost-facility-on-hold-amid-food-scrap-shortage/>.
- <sup>4</sup> Climate Bonds Initiative. Sustainable Debt: Global State of the Market 2020. DekaBank and State Street Global Advisors, [www.climatebonds.net/files/reports/cbi\\_sd\\_sotm\\_2020\\_04d.pdf](http://www.climatebonds.net/files/reports/cbi_sd_sotm_2020_04d.pdf).
- <sup>5</sup> Brown Advisory. 2020 Sustainable Bond Fund Impact Report. [www.brownadvisory.com/sites/default/files/2020%20BASBX%20Impact%20Report.pdf](http://www.brownadvisory.com/sites/default/files/2020%20BASBX%20Impact%20Report.pdf).
- <sup>6</sup> Trabish, Herman K. "New Money: Green Banks and Green Bonds Are Bringing Billions to Utilities for the Energy Transition." Utility Dive, 19 Nov. 2019, <https://www.utilitydive.com/news/new-money-green-banks-and-green-bonds-are-bringing-billions-to-utilities-f/567483/>.
- <sup>7</sup> "Soil and Water Outcomes Fund." Quantified Ventures, <https://www.quantifiedventures.com/soil-and-water-outcomes-fund>.
- <sup>8</sup> "Solid Waste Disposal and Operating Fees in U.S. States." Committee to Study Recycling Streams and Solid Waste in New Hampshire, New Hampshire General Court Statutory and Study Committees, 10 Jan. 2013, <http://gencourt.state.nh.us/statstudcomm/committees/1476/reports/2019%20Final%20Report.pdf>.
- <sup>9</sup> "Resource Conservation | State Recycling Tax Incentives | US EPA." US Environmental Protection Agency - Wastes - Resource Conservation - Recycling Market Development, 21 Feb. 2016, <https://archive.epa.gov/wastes/conserves/tools/rmd/web/html/rec-tax.html>

# Financing Industrial Composting Facilities: Challenges and Opportunities



## Appendix A: Funding Sources Pros and Cons

| Financing Vehicle   | Pros   | Cons  |
|---|--|---|
| <b>Equity:</b> <ul style="list-style-type: none"> <li>Bank, credit union, or savings institution</li> <li>Private individual investors</li> <li>Venture capital</li> <li>NGO grants</li> <li>For-profit companies</li> <li>Business partners</li> </ul> | <ul style="list-style-type: none"> <li>For-profit companies: Shared best practices</li> <li>Venture capital: Operational expertise; Industry network; Potential future financing</li> </ul>          | <ul style="list-style-type: none"> <li>External ownership means lessened internal decision-making power</li> <li>Venture capital: Funds may require majority ownership and a large say in operations</li> </ul>   |
| <b>Crowd-funding</b>  | <ul style="list-style-type: none"> <li>Great marketing</li> <li>“Free money”</li> </ul>  | <ul style="list-style-type: none"> <li>Net take reduced after platform fees and commission</li> <li>Emotional toll of addressing all individual contributors</li> </ul>   |
| <b>Personal debt</b>  | <ul style="list-style-type: none"> <li>Move quickly</li> <li>Maintain personal control without outside investors</li> </ul>  | <ul style="list-style-type: none"> <li>Cash flow later in business might be reduced</li> <li>Slower growth</li> <li>Stress of personal asset risk</li> <li>Limited capital at start</li> </ul>  |
| <b>Government financing:</b> <ul style="list-style-type: none"> <li>Grant</li> <li>Tax credit (for equipment or property)</li> <li>Loan through third-party intermediary</li> <li>Bond issuance</li> <li>Public-private partnership</li> </ul>          | <ul style="list-style-type: none"> <li>“Free money”</li> <li>Bond: Favorable rates; Longer maturity time period; Lower interest rate</li> <li>PPP: Distributed risk; Greater efficiency</li> </ul>   | <ul style="list-style-type: none"> <li>Grant: Time needed to satisfy grant reporting requirements; Often only for medium-size firms (not start-ups)</li> <li>Bond: Only for public-sector projects; Transaction costs; Administrative hassle of issuance; Need of proven credit for potential buyers</li> </ul> |
| <b>Debt financing:</b> <ul style="list-style-type: none"> <li>Bank, credit union, or savings institution</li> </ul>   | <ul style="list-style-type: none"> <li>Limited shareholder dilution</li> </ul>   | <ul style="list-style-type: none"> <li>High cash flow to debt ratio requirement</li> <li>Personal guarantees of debt repayment by business owners</li> </ul>  |
| <b>Own-source revenue</b>   | <ul style="list-style-type: none"> <li>No interest or other servicing fees</li> </ul>  | <ul style="list-style-type: none"> <li>Only available to established compost manufacturers</li> </ul>   |
| <b>Green bond</b>   | <ul style="list-style-type: none"> <li>Tax advantages; Access to ESG bond investor base</li> </ul>   | <ul style="list-style-type: none"> <li>Only for public-sector projects</li> </ul>   |
| <b>Outcomes-based finance</b>   | <ul style="list-style-type: none"> <li>Low initial outlay required to access sufficient capital financing</li> <li>Benefits of environmental enhancement understood and valued monetarily</li> </ul> | <ul style="list-style-type: none"> <li>Untested in world of compost</li> </ul>  |

# Financing Industrial Composting Facilities: Challenges and Opportunities



**US** Composting Council®

## Appendix B: 2021 US Solid Waste Surcharges and Grants\*

| State       | Waste Surcharge   | Is \$ going to state solid waste planning? | 2021 Grants | Eligible entity types (for programs funded by surcharge; if no surcharge, programs funded o/w) |
|-------------|---|--|-------------|--|
| Alabama     | (1) \$1/T for all waste disposed of in a municipal solid waste landfill<br>(2) \$1/T or \$0.25/cy for all waste disposed of in public industrial landfills, construction and demolition landfills, non-municipal solid waste incinerators, or composting facilities, which receive waste not generated by the permittee (3) \$0.25/cy for all waste disposed of in a private SWM facility, not to exceed \$1,000 per calendar year  | Yes, state only                            |             | Public, Non-profit   |
| Alaska      | No  | No   |             | n/a  |
| Arizona     | \$0.25 for each six cubic yards of uncompacted solid waste, \$0.25 for each three cubic yards of compacted solid waste, or \$0.25 cents per ton of solid waste received at landfills regulated by the department  | Yes, state only                            |             | Public, non-profit, private  |
| Arkansas    | Municipal landfills and out-of-state transporters: \$0.25 per uncompacted cubic yard of solid waste; \$0.45 per compacted cubic yard of solid waste; \$1.50 per ton of solid waste.<br>Municipal landfills: \$0.15 per uncompacted cubic yard of solid waste; \$0.30 per compacted cubic yard of solid waste received at a landfill; \$1.00 per ton of solid waste.<br>Private industry landfills: \$0.10 per uncompacted cubic yard of solid waste; \$0.20 per compacted cubic yard of solid waste; \$0.50 per ton of solid waste. | Yes  |             | Public   |
| California  | \$1.40/T of waste disposed of at landfills (called Integrated Waste Management Fee).<br>Some publicly owned landfills are funded through different mechanisms, e.g. property taxes or the General Fund. Tipping fees vary across the state  | Only for state agencies                    |             | Public   |
| Colorado    | \$0.39/cy   | Yes  | Y           | n/a  |
| Connecticut | No  | State                                      |             | n/a  |
| Delaware    | \$85/T at state-owned landfills   | State                                      |             | n/a  |
| Florida     | No  | No   |             | n/a  |
| Georgia     | \$2.50/T  | State                                      |             | n/a  |
| Hawaii      | \$114/T   | State                                      |             | n/a  |
| Idaho       | No  | No   |             | n/a  |
| Illinois    | \$2.22/T and/or \$0.95/cy   | No   |             | n/a  |
| Indiana     | \$0.60/T  | State & local                              |             | Public, private, non-profit, schools   |

# Financing Industrial Composting Facilities: Challenges and Opportunities



**US** Composting Council®

| State          | Waste Surcharge  | Is \$ going to state solid waste planning? | 2021 Grants | Eligible entity types (for programs funded by surcharge; if no surcharge, programs funded o/w) |
|----------------|--|--|-------------|--|
| Iowa           | Base fee is \$4.25/T; however, based on penalties and rewards for the landfill's waste diversion efforts, each landfill pays slightly more or slightly less than the base amount.<br>Note: Environmental Management System program participants pay a tonnage fee of \$3.65/T, remitting \$2.10/T to the DNR (state average rate). | Yes, state and local                       |             | n/a  |
| Kansas         | \$1/T  | State                                      |             | Public, schools  |
| Kentucky       | \$1.75/T   | State                                      |             | Public, schools  |
| Louisiana      | "Disposal surcharges: \$0.99/T for industrial solid waste, \$0.25/T for non-industrial solid waste and for C&D landfills.<br>Tipping fee: \$0.20/ton"  | No   |             | Public, schools  |
| Maine          | No   | State                                      |             | n/a  |
| Maryland       | No   | No   |             | n/a  |
| Massachusetts  | No   | State                                      | Y           | Public, private  |
| Michigan       | \$0.26/T (2018 attempt to raise to \$4.75/T failed)  | No   |             | n/a  |
| Minnesota      | State SWM Tax  | Local only                                 |             | Public   |
| Mississippi    | \$1/ton  | Local only                                 |             | n/a  |
| Missouri       | No   | State                                      |             | n/a  |
| Montana        | \$0.40/T   | Yes  |             | n/a  |
| Nebraska       | \$1.25/T   | Yes  | Y           | Public, schools, and private   |
| Nevada         | No   | State                                      |             | n/a  |
| New Hampshire  | No   | State                                      |             | n/a  |
| New Jersey     | \$3/T  | State                                      |             | Public, non-profit   |
| New Mexico     | No   | State                                      |             | n/a  |
| New York       | No   | State                                      | Y           | Public, schools  |
| North Carolina | Excise tax of \$2/T on disposal of MSW and C&D debris in in-state landfills, and on the transfer of MSW and C&D debris to a transfer station for disposal out of state   | State                                      |             | Public, public-private partnership   |
| North Dakota   | No   | State                                      |             | n/a  |

# Financing Industrial Composting Facilities: Challenges and Opportunities



**US** Composting Council®

| State          | Waste Surcharge   | Is \$ going to state solid waste planning? | 2021 Grants | Eligible entity types (for programs funded by surcharge; if no surcharge, programs funded o/w) |
|----------------|---|--|-------------|--|
| Ohio           | \$4.75/T of solid waste disposed  | State                                      | Y           | Public, public-private partnership   |
| Oklahoma       | \$1.50/T  | Yes  |             | Public, schools  |
| Oregon         | \$1.18/T  | State                                      |             | Public, non-profit   |
| Pennsylvania   | \$6.25/T  | State                                      |             | Public   |
| Rhode Island   | No  | State                                      |             | n/a  |
| South Carolina | No  | State                                      |             | n/a  |
| South Dakota   | \$0.75/T on MSW in landfills  | Local only                                 | Y           | Public, non-profit   |
| Tennessee      | \$0.90/T  | State & local                              |             | Public, public-private partnership, non-profit   |
| Texas          | \$0.94/T  | State & local                              |             | Public, schools  |
| Utah           | \$0.13-\$2.50/T   | State                                      |             | n/a  |
| Vermont        | \$6/T for waste in landfills  | State                                      |             | n/a  |
| Virginia       | Base fee is \$0.115/T   | State                                      |             | n/a  |
| Washington     | 3.6% solid waste refuse excise tax paid by business and charged to consumer | State & local                              |             | n/a  |
| West Virginia  | \$8.75/T  | State                                      |             | Public   |
| Wisconsin      | \$13/T  | No   |             | n/a  |
| Wyoming        | No  | Local only                                 |             | n/a  |

\*For more and current data, visit [www.compostingcouncil.org/surcharges](http://www.compostingcouncil.org/surcharges)