Waste 360

Organics Diversion Drives Changes in Landfill Operators' Roles

Industry leaders describe how landfills' roles are changing and how operators are adapting.

Arlene Karidis | Jan 28, 2020

With the growing push for more organics diversion , landfill operators' roles are evolving. As they respond to policies and municipal contract requirements around food and yard waste, they are burying and burning less and often finding new ways to capitalize on these streams.

Many are developing compost facilities, investing in anaerobic digestion and other technologies. They are forming strategic partnerships, making acquisitions and taking other innovative approaches—not only to manage organics but to turn them into commodities.

Waste360 spoke to several industry leaders about how landfills' roles are changing, what they anticipate the future holds, challenges and how operators are adapting.

***Waste360*: What have been some challenges in meeting increasing demands around organics diversion? And how has Waste Management adapted?**

Susan Robinson , senior director of sustainability at Waste Management: The ability to site and build enough facilities to provide resources to achieve ambitious goals is hard. We have often found co-located organics processing operations to be a good solution to this challenge. Of our 42 organics recycling facilities [such as those that compost, chip and grind], 39 are at landfills. These are excellent locations since landfills often have the space, and co-location can facilitate permitting.

We also co-locate our CORe food processing facilities at urban transfer facilities. This is where we process food into a slurry, then deliver it to water resource recovery facilities where it goes into their digesters to make green energy.

By strategically co-locating these urban transfer facilities, material does not have to move as far. This cuts down on permitting, cost and environmental impact.

We have been investing in technology beyond CORe. For example, we have a new operation in Oakland, Calif., that will process residual waste left after residents separate recyclables, food and yard waste. Recyclables [pulled from the trash stream] will be separated for recycling. The organics fraction will be processed for compost. This is highly unique in that we will be extracting the organic fraction and putting it to beneficial use.

This processing facility will have capacity to provide services for other local communities as well. And we are building a similar facility in Los Angeles as part of the city's new contract requirement. While the Oakland operations will make compost, the organics from the Los Angeles operation will be digested for energy.

We are growing our infrastructure and technical capabilities in response to a greater focus on organics management. For instance, 30 percent of our compost facilities now process food waste to meet growing demands.

We continue expanding, with two acquisitions in 2019, as well as through partnerships with other composters and digestion companies. Through such efforts, in 2018, we managed 3.59 million tons of organic waste.

***Waste360*: How do you see landfills fitting into the "food waste" picture as government policies continue to evolve around diversion? Will operators need to develop new expertise and take on new roles?**

Robert Gardner, senior vice president at SCS Engineers: If a state or local jurisdiction requires that food waste be managed separately from the other waste streams, landfills may actually be a logical place to co-locate these facilities .

I've always contended that landfills with comprehensive gas collection and recovery systems are well-suited for managing organic waste, assuming the gas collected is used for beneficial purposes. However, not all states agree; therefore, composting and anaerobic digester projects will be built throughout the U.S.—some at landfills and others as standalone facilities.

If at a landfill, the "landfill operator" may or may not be responsible for these additional facilities. The skill set for an organics processing facility is generally different than for a landfill. Landfills require extensive knowledge of heavy mobile equipment, stormwater management, waste placement, etc. Running organics processing facilities requires knowledge of biological and chemical processes, similar to a wastewater treatment operator.

There could be a partnership depending on who gets the contract for the organics collection and processing. If the landfill owner/operator gets the contract, I suspect the landfill owner will staff the facility, unless they contract it out to a vendor and rely on the vendor to staff the operations.

***Waste360*: Do you think other states will follow with regulations and/or ambitious goals around organics waste such as California has done?**

David Biderman, executive director and CEO for Solid Waste Association of North America: Some states are likely to begin or expand existing organics waste diversion programs. It is difficult to predict specific states that might do so, though those in the Northeast or Mid-Atlantic are typically more interested in such programs. And with the recent announcement that Oahu's only municipal solid waste landfill will close by 2028, Hawaii may undertake additional efforts to divert organics and other materials from disposal.

***Waste360*: What has been happening in your region as a result of heightened organics diversion expectations? And how is it affecting your operation and decisions?**

Jason Munyan, manager of engineering for the Delaware Solid Waste Authority: A large-scale composting operation was built in Northern Delaware about half a mile from one of our three landfills. Some organics that would have come to our site started going to this private facility to be processed. While it was not a large percentage, we did see less coming in and equated this to less gas for beneficial use, as well as less tonnage, which can affect your budget at the end of the year. That compost operation, unfortunately, was unsuccessful and shut down, but it got us thinking more about how these technologies are emerging and evolving.

Meanwhile, managing organics in a landfill can work well from an operational perspective. Material breaks down fast, so it does not take a lot of space in the long term. And between methane gas and disposal services, you can add revenue.

We want to learn from what private industry has done, as far as what organics processing methods work and what won't. So, we have watched compost and anaerobic digestion, with the idea that we may want to utilize such operations one day. But we don't want to make assumptions about their viability and jump on the bandwagon. We want to step back and evaluate them, based on how these operations are working at real-world sites. We want to look at not just how they operate but how they would potentially work at our sites because every facility is different.

We acknowledge organics is probably the next step toward increased diversion from landfill, but we want to make sure if and when we institute organics diversion it's a well-thought-out system and serves the people we are here to serve. And we want to be sure the whole system is accounted for, from our ability to secure clean organics, to final disposal of unusable byproducts, to ability to market end products. One weak link could cause the whole system to fail.

***Waste360*: What do you anticipate will be the greatest impact of California's organics diversion regulations on the state's landfill operators? And how are you preparing?**

Jim Stone, deputy director of public works/operations for San Joaquin County, Calif.: We believe that the greatest impact of regulations around organics diversion will be on our financing mechanism. Landfill tipping fees are our main source of revenue. With more programs to divert material, including organics, which is where we expect the greatest reduction in materials over the next several years, landfilled tonnage will decrease. While landfill costs will also decrease somewhat, we must ensure that other programs generate sufficient revenue.

California constitutional limits imposed by Proposition 13 (which reduces property taxes) severely restrict how taxes and fees are imposed, which further complicates any new revenue model.

California's regulations for implementing organics disposal, which are being finalized, place a heavy burden on local jurisdictions for inspection, reporting and enforcement. There are requirements for load checking and waste audits that will affect landfill operations. This is requiring a significant change in roles and will require additional staffing, with specialized skills and training.

And we will be required to make significant capital investment to construct organics processing infrastructure. Private industry has yet to show any indication that they will invest significantly, so local governments may have to fund this. Meanwhile, the public is willing to pay a certain amount to make unwanted items go away. Costs associated with increased regulations and diversion programs will consume a larger piece of this pie, so landfill operators will have to fight for and justify their costs more aggressively.

Before our county invests in such facilities, we will ensure that we have long-term contractual control of flow at rates to cover capital and operating costs.

Currently, we are updating county ordinances to set the stage for the new organics and food waste requirements. And we are working with a consultant to assist us in preparing a recommended long-term facilities and operations plan for consideration by our county board of supervisors.

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