The impacts of organic waste diversion on the bioenergy market

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Q: What are the trends nationally in organic waste diversion?

A: Although this varies by state, the trend nationally is toward more extensive organic waste diversion. Some states have outright landfill bans against organic waste disposal while other states more heavily promote organic waste recycling, composting and reuse. The writing is clearly on the wall that organic waste will continue to be moved away from landfills toward recycling and beneficial uses. However, increasing municipal organics diversion from landfills may not necessarily come naturally in some states without legislation. Therefore, they may need to follow the lead of Vermont, Massachusetts and others and enact legislation that bans organic disposal in landfills to give the technology the necessary core mass of feedstock.

Q: How will this affect existing landfill gas-to-energy projects?

A: Since organic waste produces the methane in landfill gas (LFG), the loss of this material will ultimately have a negative impact on the quality and quantity of LFG produced. This can affect existing landfill gas-to-energy (LFGE) projects if they cannot meet contractual or economic thresholds for energy production. It also jeopardizes new projects, which may require a minimum gas production to be successful or cannot risk the investment due to the uncertainty of future organic waste diversion. This loss of LFG-derived renewable energy would have to be made up elsewhere.

Q: How can we retain the energy value of this organic waste once it leaves the landfill?

A: There is and will continue to be a battle for the diverted organic waste and associated tipping fees. Traditionally, composting has been the first choice for recycling of organic waste. Composting does not create energy directly, however it does reduce energy consumption in the agricultural and fertilizer industries. Some states, such as California, are pushing anaerobic digestion (AD) as an organic waste management option. AD can produce biogas for renewable energy generation as well as a soil amendment or feedstock for composting. There are also various conversion technologies (i.e. gasification and pyrolysis), which can convert organic waste to energy. However, many are still in the research and development stage or have not gained environmental acceptance. Another means may be the mixed material recycling facility (MRF), which includes organic wastes as a feedstock. This new crop of high-technology MRFs may be able to provide waste-derived fuel as a viable energy byproduct.

Q: What does your crystal ball say for organic waste diversion and bioenergy?

A: If I had to guess, I'd say that more and more organic waste, including food waste, will be diverted from landfills each year, and we must find a viable home for all of this material. Toward that end, renewable energy production should be high on everyone's list of criteria to be met for an alternative organic waste management strategy. The reality is that with the sheer volume of organic waste to be managed, all of the options will be in play, and we must have significant investment in infrastructure development to support organic waste diversion. This not only means more facilities but also improvements in technologies to increase efficiencies, reduce environmental impacts and decrease costs. AD and other technologies have to be streamlined from design, delivery, construction and operations standpoints, so that the capital and operating costs bring it to a competitive state on a lifecycle basis with landfilling. This could happen as more municipalities find ways to integrate the technologies and gain more operating experience that feeds back to the manufacturers and results in these improvements. Ultimately, we want to be able to maximize the output of renewable energy and put that energy to its best and highest use.

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