Quantifying Methane Emissions from Landfilled Food Waste: October 2023 U.S. Environmental Protection Agency Report

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The United States Environmental Protection Agency ("EPA") issued an October 2023 report titled:

Quantifying Methane Emissions from Landfilled Food Waste ("Report")

See EPA-600-R-23-064.

The *Report* was prepared by EPA's Office of Research and Development.

EPA states the *Report* represents the first time the agency has quantified methane emissions from landfilling. Estimates of annual methane emissions from landfilled food waste were modeled. The stated objective was to provide a cost of landfilling wood waste in terms of the impact on climate change through the related methane emissions.

Methane is generated (i.e., emitted) from the decaying of organic waste over time under anerobic conditions. The importance of methane as an emission is that it is a greenhouse gas. Food waste is obviously an inorganic material, and a significant amount is sent to landfills.

EPA's quantification of this material is stated to have extended from estimates of degrading food waste in municipal solid waste landfills in the United States from 1990 to 2020.

EPA notes uncertainty in its modeling approach but indicates that the results of the analysis include:

- In 2020, food waste was responsible for approximately 55 million metric tons of CO2 equivalents (mmt CO2e) emissions from U.S. MSW landfills.
- An estimated 58 percent of the fugitive methane emissions (i.e., those released to the atmosphere) from MSW landfills are from landfilled food waste.
- An estimated 61 percent of methane generated by landfilled food waste is not captured by landfill gas collection systems and is released to the atmosphere. Because food waste decays relatively quickly, its emissions often occur before landfill gas collection systems are installed or expanded.
- While total methane emissions from MSW landfills are decreasing due to improvements in landfill gas collection systems, methane emissions from landfilled food waste are increasing.
- For every 1,000 tons (907 metric tons) of food waste landfilled, an estimated 34 metric tons of fugitive methane emissions (838 mmt CO2e) are released.

- Reducing landfilled food waste by 50 percent in 2015 could have decreased cumulative fugitive landfill methane emissions by approximately 77 million metric tons of CO2 equivalents (mmt CO2e) by 2020, compared to business as usual.

A copy of the *Report* can be downloaded here.