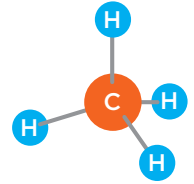


Food Waste and Methane: What's the Connection?



What is methane and why is it important?

Methane (CH_4) is a greenhouse gas (GHG) and its presence in the atmosphere affects the earth's temperature and climate system. Both natural and human activities produce methane emissions. For example, agricultural activities (e.g., ruminants, manure, and rice), waste management (e.g., landfills and wastewater treatment), fossil fuel extraction and transport, wetlands, and open biomass burning all produce methane.¹ Methane is also a primary component of natural gas.



Methane is 28 times more potent than carbon dioxide (CO_2) at trapping heat in the atmosphere and is responsible for approximately 30% of the increase in global temperature since the Industrial Revolution.^{2,3} Over the last two centuries, atmospheric methane concentrations have more than doubled, largely due to human-related activities.

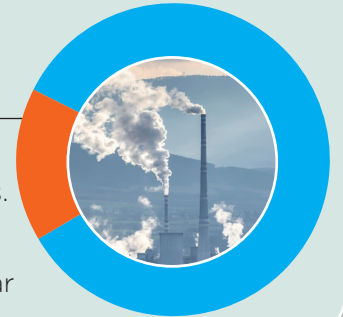
Because methane is a powerful GHG and short-lived compared to carbon dioxide, rapidly reducing methane emissions is a key component in efforts to avoid catastrophic global warming. Recognizing this, the [Global Methane Pledge](#) was launched to reduce collective human-related methane emissions 30% from 2020 levels by the year 2030, and is now supported by about 150 countries, including the United States.⁴

Methane accounts for about

16%

of global GHG emissions.

It is 28X more powerful than CO_2 (over a 100 year timespan).



What is the connection between food waste and methane?

Roughly one-third of all food available for human consumption goes uneaten, both domestically and globally. In the United States, much of this uneaten food ends up in landfills and sewers



where it decays over time in the absence of oxygen, producing methane.

[According to the EPA](#), municipal solid waste (MSW) landfills are the third-largest source of methane emissions from human activities in the U.S. Food waste is the number one component in U.S. MSW landfills (24% in 2018).

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Most U.S. landfills install systems to capture landfill gas, which includes methane. However, food waste decays more quickly than many other organic wastes, often before gas collection systems are installed or expanded at the landfill.

In 2020, food waste was responsible for approximately 58 percent of the fugitive methane emissions from MSW landfills, emitting approximately 55 million metric tons of carbon dioxide equivalents (CO₂e) based on a 100-year global warming potential (GWP). The greenhouse gas emissions from landfilled food waste are equivalent to the annual emissions of 15 coal-fired power plants (or 7 million homes' energy use).

For every 1,000 short tons (907 metric tons) of food waste that was disposed of in a landfill in 2020, 838 million metric tons CO₂e were emitted (over a 30-year time span) into the atmosphere, which

1/3

of all food available for human consumption goes uneaten.



is equivalent to the greenhouse gas emissions of burning five railcars' worth of coal.

Tackling food waste presents a critical opportunity to address climate change by reducing methane emissions. Reducing food waste also ensures the inputs needed to produce food, such as water, land, and fertilizer, are not wasted.



The greenhouse gas emissions from landfilled food waste are equivalent to the annual emissions of **15** coal-fired power plants.



¹ UN Environment Programme and Climate and Clean Air Coalition (2022). "Global Methane Assessment: 2030 Baseline Report."

² International Energy Agency (2023). "Global Methane Tracker 2023."

³ Measured over a 100-year time horizon

⁴ The White House Office of Domestic Climate Policy (2021). "U.S. Methane Emissions Reduction Action Plan."

Learn about how to reduce food loss and waste at www.usda.gov/foodlossandwaste and www.epa.gov/reducefoodwaste