

LANDFILL METHANE CAPTURE

As landfills break down solid waste, they release methane into the atmosphere. Landfill methane leaks are responsible for 15% of U.S. methane emissions.¹ Instead of allowing this methane to escape into the atmosphere, landfill energy systems capture it by inserting perforated tubes into a landfill to collect this byproduct, which can then be combusted for electricity or converted to fuel to power vehicles. Although methane combustion releases CO₂, this CO₂ has 34 times less global warming potential as methane.² As a result, even if it was not used to generate electricity, burning landfill methane would make a net contribution to GHG emission reductions. However, when this combustion is used to generate electricity, it can make an even bigger contribution by displacing some combustion of fossil fuels.

In sum, while landfill methane capture is not emissions-free, it reduces emissions relative to releasing methane directly into the atmosphere, and can be used to displace a small amount of fossil fuel production. A more environmentally friendly solution might be to reduce solid waste altogether through investments in more efficient materials use, composting, and recycling, but in the short term while those investments are being made, landfill methane capture is a net positive in terms of climate impact.³ Moreover, methane capture for landfill gas energy has several co-benefits. Capturing methane makes landfills less hazardous to public health, and provides a byproduct that can generate additional revenue for landfill owners.⁴

Landfill gas energy accounts for only 0.3% of the U.S. total energy generation⁵ and it is likely to remain a relatively small part of the future energy portfolio. As of September 2021, there are currently 548 operational landfill methane capture systems in the U.S., as well as 483 other existing landfills that would be good candidates for methane capture.⁶

- Fishery friendliness: Landfill gas energy is unlikely to have any impacts on fishery resources or ecosystems.
- Co-benefits: Co-benefits of landfill gas energy include improved public safety, reduced health hazards, and enhanced revenues for waste management entities.
- Environmental externalities: Landfill gas energy produces GHG emissions, but less than would be produced if methane were simply released into the atmosphere.
- Policy catalysts: Installation of methane capture energy generation systems can be promoted through tax incentives, loans, grants, carbon pricing, and renewable energy portfolio standards.
- More information:
 - [Drawdown: Landfill methane capture](#)

¹ EPA. "Basic information about landfill gas." <https://www.epa.gov/lmop/basic-information-about-landfill-gas>

² Project Drawdown. "Landfill methane capture." <https://drawdown.org/solutions/landfill-methane-capture>

³ Project Drawdown. "Landfill methane capture." <https://drawdown.org/solutions/landfill-methane-capture>

⁴ EPA. "Benefits of landfill gas energy projects." <https://www.epa.gov/lmop/benefits-landfill-gas-energy-projects>

⁵ EIA. "What is U.S. electricity generation by energy source?" <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>

⁶ EPA. "Basic information about landfill gas." <https://www.epa.gov/lmop/basic-information-about-landfill-gas>

- [EPA: Basic information about landfill gas](#)
- [EPA: Project and landfill data by state](#)

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