Industrious Labs

MOUNTAINOUS METHANE

How Colorado can protect our climate and health by addressing emissions from landfills

In Colorado and across the country, landfills are hidden drivers of the climate crisis. Landfills emit vast amounts of the highly potent greenhouse gas methane, which poses serious risks to all Coloradans by worsening air quality, increasing extreme weather events, and threatening vital resources. In addition to methane, landfills emit a series of health-harming pollutants such as nitrogen oxides, sulfur dioxide, and toluene that directly harm the health of nearby communities.[1]

Colorado's Landfills by the Numbers

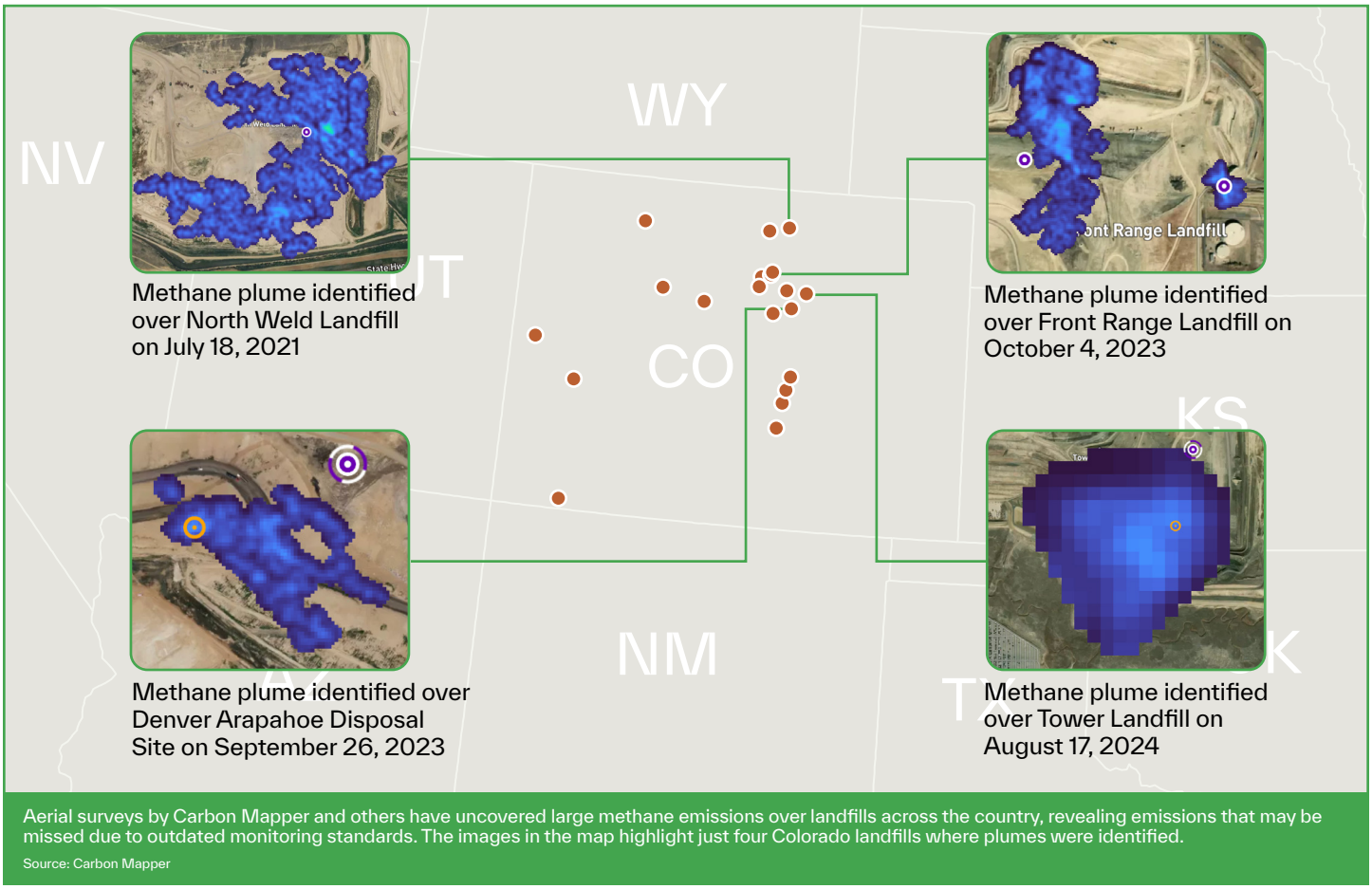
- There are **59 landfills** for municipal solid waste across Colorado.[2] Currently, only **22** are required by the U.S. EPA to report greenhouse gas emissions estimates.[3]
- In 2023, Colorado's landfills emitted methane equivalent to over **6.2 million metric tons of CO_2**, on a 20-year global warming potential. That's 20% more emissions than the coal mining industry in the same year and nearly three times as much as aviation fuels.[4]
- Methane is **80 times more potent** than carbon dioxide in the first 20 years in the atmosphere,[5] making its planet-warming impact immediate and severe.
- Impacts can be felt disproportionately by Black, Indigenous, and People of Color, those with low household incomes, and those with existing health complications. For example, **53% of landfills** in Colorado are located in areas where asthma rates are significantly higher than the state average.[6] The community within one mile of the Eagle County Landfill in Wolcott is made up of **100% Spanish-speaking households**.[7]

Hiding in Plain Sight

Current levels of methane emissions are significantly underestimated due to outdated formulas. Recent studies by Carbon Mapper[8] and NASA[9] have shown that landfill methane emissions are far higher than previously thought and underscore major gaps in traditional monitoring

> "My parents live near the Republic Services landfill on Tower Road, and I worry about how methane emissions and toxins like benzene and toluene could harm their health. I just want to know they're protected."
>
> —Laura Martinez, Cultivando

Examples of Methane Plumes Identified Over Colorado Landfills



Aerial surveys by Carbon Mapper and others have uncovered large methane emissions over landfills across the country, revealing emissions that may be missed due to outdated monitoring standards. The images in the map highlight just four Colorado landfills where plumes were identified.

Source: Carbon Mapper

protocols. Aerial surveys have also detected substantial methane emissions over landfills across the Front Range, some of which are already considered among the highest industrial methane emitters in the state.

How Colorado Can Lead with This Rulemaking

While landfill methane emissions pose a serious threat to public health and climate, it is one of the easiest climate challenges to solve—and Colorado is taking important steps forward! The Colorado Department of Public Health and Environment (CDPHE) is currently considering updates to state standards for how landfill operators manage methane emissions. CDPHE is expected to release draft rules in April 2025, which will then be voted on by the state's Air Quality Control Commission in August.

By implementing practical, science-backed, and cost-effective updates to landfill regulations, Colorado has the opportunity to lead the nation in reducing landfill emissions.

Colorado's new landfill standards should:

1. Require large landfills to capture and control the gas they generate at the earliest feasible date and in accordance with rigorous standards.
2. Require the use of modern remote-monitoring technology making methane emissions visible, measurable, and actionable.
3. Create standards for effective and robust landfill cover to mitigate surface emissions.
4. Hold landfills accountable to nearby communities through more frequent inspections, and more real-time monitoring and reporting.
5. Keep organic waste out of landfills in the first place by promoting waste prevention, edible food recovery, and composting programs.

How Stronger Landfill Methane Regulations Benefit Coloradans

Cleaner Air: Reducing landfill emissions would immediately improve air quality.

Healthier Communities: With four out of five Coloradans living in the Front Range, an area with some of the worst air quality in the state, stronger landfill standards can make a tangible difference in protecting public health.

Justice for Impacted Communities: Stronger regulations reduce the unfair burdens landfills place on nearby neighborhoods, ensuring cleaner, safer, and fairer conditions for disproportionately impacted communities.

Cost-Effective Climate Action: Upgrading landfill methane systems is cost-effective. Installing gas capture systems earlier and improving flare efficiency costs just a few dollars per ton of CO_2e reduced.[10]

> "Colorado, as it has done with other sectors when it comes to air pollution, is allowed to go above and beyond what's required by EPA. We know there are opportunities to achieve greater emissions reductions from landfills."
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> — CDPHE Staff, during a public information meeting on December 18, 2024

Learn More

For more information on how Colorado regulators can deliver cleaner air, slash planet-warming emissions, and protect communities, contact:

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Endnotes

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