

The Porter Ranch leak is plugged, but we have bigger problems

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Wednesday, February 17, 2016



Leaks from the natural gas industry are bad, but we have a larger methane problem. An emerging biogas industry that utilizes organic waste gas capture is a possible solution. Shutterstock/Rob Kemp

The leaking storage facility at Porter Ranch released about 90,000 tons of natural gas into the air, sickening residents, forcing evacuations and prompting a state of emergency. Since natural gas is composed mostly of methane, a greenhouse gas at least 25 times more potent than carbon dioxide, the Porter Ranch leak singlehandedly increased California's total CO₂-equivalent emissions by 25 percent.

SoCal Gas finally has succeeded in stopping the leak with a temporary cap, and expects to have a permanent cap in place in the next few days. But we still have bigger and more persistent methane leakage problems than Porter Ranch to solve.

Methane leaks are a problem across the natural gas industry. Adding up large and small methane emissions from U.S. onshore natural gas wells, processing and storage facilities, plus 1.5 million miles of pipelines and compression stations, it totals well over 400,000 tons a year. Stopping these leaks and preventing new ones should be a top priority for the U.S. natural gas industry. It may not be easy, but it's doable, and will go a long way toward realizing the potential air quality benefits and emissions reductions from displacing petroleum and coal with natural gas.

The EPA is expected to propose new regulations on methane leakage this summer. But even as the natural gas industry works on tamping down its methane leaks, there's yet another, much larger, source of methane emissions we need to address: Organic waste.

There are hundreds of millions of tons of decomposing farm and food waste, yard waste, municipal wastewater and other organic wastes generated across the US. Their total methane emissions dwarf those of the natural gas industry. For example, municipal wastewater and solid waste alone give off 11.5 million tons of methane — more than 100 Porter Ranches a year, or about 25 times all methane leakage from the natural gas industry.

Emissions from organic wastes are spread literally everywhere throughout the country. And while they are nowhere near as concentrated as at Porter Ranch, they still accumulate in the atmosphere. They are a quieter, but a much bigger and more insidious factor in climate change than emissions from the natural gas industry.

If we leave organic wastes alone, they flood the air with climate-changing methane as they break down. That's in stark contrast to fossil fuels. If we leave them in the ground, their hydrocarbons stay in the ground and out of the atmosphere. But what can be done about an endemic, ubiquitous greenhouse gas emitter such as organic waste?

The good news is, we can do a lot. A new industry is emerging that captures methane from agricultural operations, landfills, wastewater treatment plants and food processing industries, and turns it into renewable natural gas (RNG). RNG is virtually the same chemically as fossil natural gas, so it burns as cleanly, can be distributed via the same pipeline system and can be used to generate electricity, heat homes and power natural gas vehicles, just like fossil natural gas. But RNG's greenhouse gas emissions are vastly lower. They can be zero or even less than zero.

When RNG is made from dairy manure or food waste in efficient tanks called anaerobic digesters and used to fuel vehicles, the California Air Resources Board found its emissions were net-negative over its lifecycle. Think about that for a minute. The more biogas we capture from organic wastes, and the more RNG we make and use in vehicles, the more GHG we actually remove from the atmosphere.

Making and burning RNG can result in less GHG in the atmosphere than if the biogases from organic wastes never were captured in the first place, and just allowed to escape.

More than 50 projects in the U.S. capture methane and refine the gas to pipeline quality, including more than a dozen RNG projects in nine states converting organic waste to vehicle fuel. UPS is using it to fuel delivery vehicles. More than half of the natural gas destined for transportation use in California is RNG.

More RNG projects are in the proverbial pipeline, including two connected to the same utility that has been struggling through the Porter Ranch crisis. SoCal Gas partnered with BioFuels Energy to capture and purify biogases from the California Point Loma wastewater treatment facility into RNG. SoCal Gas's pipelines soon also may distribute RNG produced by a state-of-the-art food waste digester in Perris, California.

Methane reduction and positive climate impacts from what SoCal Gas and many others are doing to develop RNG could offset and even outweigh, by as much as an order of magnitude, methane leakage from the U.S. fossil natural gas industry overall.

Porter Ranch is a dramatic reminder of how imperative it is for the natural gas industry to prevent leaks. But let's not take our eyes off an even bigger prize. Scaling up RNG and using it in transportation dramatically could cut methane emissions, displace billions of gallons of petroleum-based vehicle fuel, and turn a costly waste burden into a huge renewable energy source, advancing energy independence, job creation and the fight against climate change.