

How California's Low Carbon Fuel Standard Incentivizes Pollution Nationwide

California's Low Carbon Fuel Standard's (LCFS) embrace of factory farm gas has enabled Big Ag companies to greenwash their reputations at the expense of farming communities and the climate, hidden behind the friendly veneer of "renewable natural gas." Deceptive climate math encourages factory farms to profit off a policy that claims to help decarbonize California and achieve clean air. Instead, filthy factory farm gas pollutes communities and provides lavish incentives for the worst climate offenders to expand operations and increase their pollution, further exacerbating the climate and air quality crises. Other states must view the LCFS as a warning for how *not* to design climate policy, rather than as a model to be followed.

Factory Farm Gas and the LCFS

"Biogas" or "renewable natural gas" refers to the gas produced after organic materials are broken down during anaerobic digestion.¹ Anaerobic digestion is as simple as it is dirty. Waste goes into an oxygen-free space called a digester, which churns out gas (mostly methane and carbon dioxide) and a sludge called digestate.² When the input waste is animal manure, it is often sourced from large factory farms and mega-dairies, which produce a tremendous amount of pollution and liquid waste.³ The resulting gas from these digesters? Factory farm gas.

Factory farm gas can be used on-site to produce electricity or heat, or it can be refined into more highly concentrated methane, making it interchangeable with fossil or fracked natural gas and available for other uses, such as injection into pipelines and combustion as vehicle fuel.⁴

Refined "renewable natural gas" is where California's LCFS policy comes into play. The LCFS is a pollution trading program intended to help decarbonize the transportation sector by allowing producers of fuels that have lower carbon emissions to generate credits commensurate with the amount of alternative fuel they produce.⁵ The California Air Resources Board (CARB) assigns all fuels a carbon intensity score, and the lower the score, the more credits a company can earn. Producers of non-carbon-intensive fuels can then sell those credits for a profit to carbon-intensive fossil fuel companies.⁶

California considers factory farm gas to have the lowest transportation carbon intensity, beating out even solar and wind, while gasoline and diesel companies rack up deficits for producing carbon-intensive fuels.⁷ How is this possible?

Deceptive climate math

Under the LCFS, factory farm gas averages a carbon intensity score of -300,⁸ which hinges on a fundamentally flawed premise of “avoided methane crediting.” This premise assumes that methane pollution is an unavoidable part of dairy or swine manure management, and therefore any methane not captured would instead have to be released into the atmosphere. This, however, is only the case for factory farms that store liquid manure in cesspools.⁹ Moreover, with digesters costing millions to construct, only large factory farms can afford them (often with help from public funding), putting smaller and more sustainable farms at a financial disadvantage.¹⁰

The problem is, methane from manure is avoidable — by not building factory farms to begin with and instead raising animals in more traditional and sustainable ways, such as those used on smaller, family-scale farms. When grazing cattle deposit their manure in fields, it decomposes in a way that releases little to no methane. In contrast, liquid manure storage (common on mega-dairies) can cause very large methane emissions. The shift toward mega-dairies beginning in the 1990s helped double U.S. methane emissions from dairy manure management, despite the total number of dairy cows staying about the same. Similarly, composting and dry scraping are other cost-effective practices that lower emissions.¹¹ But rather than rewarding small operations for such land stewardship and emission reductions, the LCFS incentivizes the shift toward highly polluting factory farming. This funnels money to the largest farms at the expense of real climate solutions and small producers.

Additionally, methane releases from manure cesspools on factory farms can persist even after digesters are installed. Food & Water Watch (FWW) analyzed methane plume data from the nonprofit Carbon Mapper, which uses satellites and fly overs to track methane emissions from sources like oil and gas infrastructure and factory farms. We identified 16 dairy operations with digesters connected to California's LCFS that released methane plumes from manure *after* their digesters were installed. All these operations are located in California, except for one owned by Threemile Canyon Farms in Boardman, Oregon. If the plumes at these farms released methane at the reported rates for just one hour, they would together release the carbon dioxide equivalent of driving a car around the equator 45 times.¹²

In late 2024, CARB doubled down on factory farm gas by preserving “avoided methane crediting” for decades to come, while supercharging the short-term incentives for factory farms to install digesters and expand their herds.¹³ In doing so, CARB refused to adequately assess or mitigate the impacts of incentivizing herd expansion and pollution production at factory farms across the country, often at the expense of vulnerable communities.¹⁴ More dairy cows also means more methane from enteric fermentation, the digestion process in cattle, which makes up a larger share of cattle emissions and cannot be captured.¹⁵

Accelerating herd expansion

CARB's appeasement of the dairy industry has created perverse incentives in the LCFS to expand, rather than reduce, herd sizes across the country. When credit prices were at their peak, factory farm gas production turned manure into a commodity half as valuable as cow's milk.¹⁶ Credit values bottomed out in 2024, amid a surplus of factory farm gas, but have slowly ticked back upward, with

credits from one cow worth around \$1,600 annually as of January 2025.¹⁷ As credit values climb, factory farms are scrambling to get into the game.

FWW analyzed data from the California Dairy and Livestock Database (CADD, provided by CARB), a flawed dataset that cobbles together mismatched data sources in an attempt to track dairy digesters and herd sizes.¹⁸ Even with these flaws, the numbers indicate that digesters are connected to herd expansion.

FWW found that herd size at California's digester dairies increased by an average of 191 cows between pre- and post-LCFS implementation periods, and fell by an average of 124 cows on dairies without digesters. The percent change in herd sizes increased by 7.7 percent on digester dairies and fell by 25.6 percent on non-digester dairies over the analyzed period. The absolute change and percentage change presented are both statistically significant.¹⁹

It is not only California that is seeing expansions. Farms in any state can profit from the LCFS by selling factory farm gas credits into the California program.²⁰ Factory farms across the country are responding accordingly. Research from the advocacy group Friends of the Earth found that across eight states, herd sizes at dairies with digesters grew an average of 3.7 percent per year since the digesters' installation — 24 times the growth rate for all dairy herds statewide over the same time.²¹

In Iowa, reporting by *The Gazette* found that of the 15 dairies that built digesters since 2021, 7 have since expanded, with total animal units jumping 23 percent.²² And in Kewaunee County, Wisconsin, research by Friends of the Earth and the Socially Responsible Agriculture Project found that at dairies with digesters benefiting from pollution trading programs, herd sizes have grown an average of 5.2 percent per year since the digesters' installation, much higher than average statewide growth.²³ The manure fad continues, with 93 new agricultural digesters coming online nationwide in 2024 — a 24 percent jump from 2023.²⁴

Dangerous Road Ahead

These corporate farms and companies facilitating factory farm gas production profit at the expense of surrounding communities. For example, all farms with digesters in Kewaunee County benefiting from the LCFS have experienced at least one spill and violated manure application permits since installation, countering the industry narrative that digesters protect water quality.²⁵ Digesters themselves are known to leak. An Iowa digester recently approved for an LCFS pathway leaked over 375,000 gallons of manure for three weeks in 2022, contaminating a nearby waterway.²⁶

It is well documented that individuals living near factory farms already face adverse health effects and higher mortality risks, not limited to kidney diseases, respiratory conditions, blood pressure elevation, and low birthweight.²⁷ Crucially, as herd sizes and factory farm operations expand, so will the air and water pollutants associated with factory farms. Factory farm air pollutants include ammonia, hydrogen sulfide, volatile organic compounds (VOCs), and particulate matter, among others.²⁸

Factory farm gas only exacerbates these problems, bringing its own toxins — from the exhaust generated from the use of heavy equipment to the flaring of hydrogen sulfide.²⁹ Digesters themselves can release air pollutants like nitrogen oxides (which contribute to respiratory illness) and sulfur dioxide (which can cause smog and haze formation).³⁰ Digesters do not erase livestock

manure that still needs to be disposed of (often on land), and they can enhance manure's ability to pollute water sources with nutrients like phosphorus and nitrogen.³¹

The profit motive from producing factory farm gas can also lead to disaster. A North Carolina farm overfilled its lagoons and illegally discharged fecal matter, liquefied hog carcasses, and old meat into surrounding wetlands, contaminating groundwater with over 17 times the legal limit of ammonia.³²

Factory farms have long been disproportionately located in low-income and non-white areas, and those communities have borne the bulk of the harms associated with these facilities.³³ Digesters will only worsen this trend. Numerous factory farm gas projects in North Carolina are already sited in predominantly Black and Latino counties, where premature deaths occur every year from hog farm emissions.³⁴

In California, the San Joaquin Valley is home to the state's highest concentration of disadvantaged communities, dairy cows, and now digesters.³⁵ The area's predominantly Latino residents are already faced with unsafe water, poor air quality, and dry wells from industrial agriculture.³⁶ According to the U.S. Environmental Protection Agency's AgStar database, the total number of digesters increased over 11 times in the valley from 2017 to 2024,³⁷ and residents testify that air and water quality has only worsened.³⁸

Other States Must Resist Pollution Trading and Factory Farm Gas

California is not the only state with this problematic pollution program. Nearby Oregon and Washington both implemented LCFS-like programs — in 2016 and 2023, respectively — albeit with much smaller fuel markets.³⁹ These too have fallen into Big Ag's trap. Oregon added factory farm gas to its market in 2016, and Washington plans to incentivize "avoided methane" credits from factory farm operations for up to 15 years.⁴⁰

New Mexico passed its own version of the program in 2024, set to go into effect in 2026, and several other states are considering similar policies.⁴¹ As New Mexico drafts rules for its program, and as other states debate the merits of such approaches,⁴² it is vital to understand that incentivizing factory farm gas in these policies widens the market for Big Ag and Big Oil to profit off pollution. The boondoggle that has become the LCFS underscores that pollution trading schemes are not climate solutions, nor substitutes for reducing emissions at the source.

Factory farm gas is simply another industry smokescreen to pollute behind, and these critical policy missteps allow Big Ag and dirty factory farm gas producers to profit off the destruction of our health and safety. All this industry propaganda is propping up a fuel that can never even replace fossil fuels: across all potential feedstocks, the available waste streams could together supply only around 7 percent of U.S. natural gas consumption nationwide.⁴³

Big Ag is not interested in real climate solutions, only in profit. It is urgent that states view California's LCFS as a warning sign, rather than as a solution. States must instead swiftly transition to 100% clean energy. They must also transition from polluting factory farms to smaller, family-scale farms that can reduce climate emissions while keeping money in local economies.

Endnotes

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