



Clean Electricity Tax Credits and the Inflation Reduction Act: Real Reductions or Polluter Gimmicks?

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Executive Summary

- **Fossil fuel and factory farm interests are pressuring the Biden Administration to include “book-and-claim” accounting in the implementation of new climate tax credits launching in 2025. This would allow new fossil methane power plants to claim zero emission tax credits simply by purchasing “avoided methane” offsets.**
- **These “avoided methane” offsets are generated when biogas is captured from factory farms or landfills. Because of deeply flawed counterfactual assumptions embedded in certain models, this captured biogas is treated as having negative emissions.**
- **The most prominent example of a climate program that utilizes avoided methane is the California Low Carbon Fuel Standard (CA LCFS). This market-based program recently saw a major collapse in the price of compliance credits, thanks in part to a market glut from too much negative emission biogas.**
- **If new Inflation Reduction Act tax credits are implemented using a book-and-claim system with “avoided methane” values on par with the California system, then a new fossil gas plant would only need offsets to cover as little as 14% of its fuel supply in order to declare itself “zero emissions” and earn highly profitable tax credits.**
- **Based on average utilization rates and different estimated costs of acquiring offsets, an average-sized new natural gas combined cycle (NGCC) plant could see over a 100% return on investment claiming the tax credit. The annual payout based on current capacity rates would be \$90.6 million. The credit can be claimed for ten years.**
- **As the Treasury Department prepares to finalize regulations governing these tax credits by the end of 2024, it is imperative that book and claim accounting be rejected. The climate and environmental justice integrity of the Inflation Reduction Act is at stake.**

Introduction

Big Oil and Big Ag are joining forces to hijack a key provision of the Inflation Reduction Act. If these special interests get their way, billions in tax credits intended for wind and solar could flow to new fossil gas plants. The success or failure of this scheme hinges on President Biden's Treasury Department, which is expected to release final guidance concerning these tax credits in late 2024.

At issue are the new 45Y and 48E Clean Electricity Tax Credits – the two most important provisions in the Inflation Reduction Act for decarbonizing the power grid. Together they are expected to send [over \\$115 billion](#) predominantly to wind and solar – nearly a quarter of the total clean energy investments estimated in the entire Inflation Reduction Act.

Unlike previous generations of tax credits, 45Y and 48E are technology neutral. This means that any zero emission energy source is theoretically eligible. The Treasury Department has already [declared](#) that obviously clean energies like wind and solar will qualify by default. But the law also offers a narrow path for so-called “combustion and gasification” technologies to earn the credit if they can prove that they are emissions-free on a lifecycle basis.

Unfortunately, there are myriad different ways that modeling decisions can obscure a technology's true emissions, and lobbyists for some of the most polluting energy sources – including woody biomass, trash incineration, and even fossil gas – are trying to put their thumb on the scale. This greenwashing campaign could net polluters billions in new subsidies.

Book and Claim - A Pollution Nesting Doll

One of the most dangerous proposals for the clean electricity tax credits is a “book and claim” system that would allow fossil gas power plants to falsely qualify as zero emission. This gimmick means that the very real climate pollution from fossil gas could be erased by the purchase of “avoided methane” offsets from factory farms and landfills. Book and claim is best understood as an accounting system. It allows the environmental attributes of something – such as methane generated at a factory farm – to be separated from the underlying product and traded to other consumers. So biogas captured from a dairy in upstate New York cancels out a fossil gas plant in Florida.

This scheme would create a nesting doll of climate devastation at every layer. Utilities would be subsidized to continue investing in new fossil gas power. Factory farms and landfills selling biogas offsets would be incentivized to maximize and concentrate pollution rather than adopt more sustainable practices. Perhaps most perversely of all, the energy community booster in the tax credit – designed to steer clean investments towards places

historically burdened with fossil fuels – would backfire by encouraging even more dirty investments to be stacked in those same communities.

Table 1: Clean Electricity Tax Credits

	45Y PTC	48E ITC
Description	The production tax credit (PTC) provides a subsidy for every megawatt hour (MWh) of clean power produced	The investment tax credit (ITC) provides a subsidy worth a flat percent of the investment costs towards a clean energy facility.
Base Credit	\$5.50 per MWh	6%
Base credit with prevailing wage and apprenticeship standards	\$27.50 per MWh	30%
Energy Community Bonus	\$2.75 per MWh	10%
Domestic Content Bonus	\$2.75 per MWh	10%
Total Potential Subsidy Value	\$33.00 per MWh	50%

This book and claim scheme relies on modeling that inflates the value of methane biogas as an offset. Although the methane biogas produced by factory farms and landfills has the same harmful climate impact as the methane that makes up fossil gas, it is often assigned mind-boggling emissions values on the faulty premise that status quo pollution is inevitable and that capturing even a small portion should qualify as ‘negative’ emissions. These negative values do not account for the overall emissions impact of the industry nor the perverse incentives to concentrate and commodify pollution.

In the proposed rule released in May, Treasury did outline certain guardrails to prevent some of the most flagrant abuses. The same molecule of methane biogas would be prohibited from “double-counting” towards both the 45Y tax credit and any other existing state or federal program. The Treasury Department also appears to be contemplating a standard of “first productive use”. In other words, if the methane biogas was already being produced and captured for sale before the Inflation Reduction Act, then it cannot be used to claim tax credits. The reasoning is that if methane was already being captured

previously, there are no additional ‘avoided emissions’ to be considered. Remember, the absurdly positive climate benefits of captured biogas stem from counterfactual assumptions about the methane otherwise being emitted into the atmosphere. But this logic fails if the status quo is the biogas being captured or even flared onsite. Unsurprisingly, this distinction has been met with fierce resistance by the Coalition for Renewable Natural Gas, which represents the majority of biogas production in the US, as well as Big Oil giants like Chevron and BP. Their objection seems based more on industry [economics](#), like the “greater risk of stranded gas for existing projects” than legitimate climate credentials.

Methane biogas producers are not the only advocates for offsets. The book and claim scheme offers a lucrative backdoor for fossil gas. None other than the infamous American Petroleum Institute explicitly endorsed book-and-claim accounting in their comments to the Treasury Department. This is because under this problematic methodology, fossil gas power plants would only need to purchase a small amount of methane biogas offsets in order to claim to be ‘zero emissions’ – enriching both industries while doing nothing to address the climate crisis. But exactly how enriching would this scheme be?

Book and Claim by the Numbers

Book and claim accounting and negative emission offsets are a dangerous combination – and no system demonstrates that more clearly than the California Low Carbon Fuel Standard. As the result of too much renewable diesel and negative emission biomethane in the program, the price of compliance credits has collapsed 75 percent since 2021. This is squeezing the ability of truly clean renewables to compete.

What would happen if the Inflation Reduction Act adopted the California model for implementing the new technology neutral tax credits? This is in fact what a number of polluter trade associations are requesting from the Biden Administration. Because of the absurdly high negative emission values, a comparatively small number of offsets would allow new fossil methane to become zero emission on paper. The chart below shows the 12 facilities using dairy manure as a feedstock to produce electricity under the program, along with their locations and certified carbon intensities:

Table 2: CA LCFS Dairy Biogas to Electricity Pathways

Facility (ID)	Facility Location	Current Certified CI (g CO2/MJ)
Van Warmerdam Dairy Digester (V4907)	California	-592.68
Van Steyn Dairy Digester (V1125)	California	-630.72
New Energy One (F00274)	Idaho	-698.21
Giacomini Dairy (F00305)	California	-431.65
Hilarides (F00006)	California	-756.24
Bar 20 Biogas LLC (F00510)	California	-790.41
Open Sky (F00007)	California	-364.41
ABEC Bidart-Old River LLC (F00113)	California	-613.23
Coronado Dairy Farm (F00009)	California	-760.21
New Hope Dairy Digester (F00255)	California	-752.17
Big Sky Dairy Digester (F00329)	Idaho	-506.69
Madera Renewable Energy, LLC (F00436)	California	-756.17
Average CI		-671

With methane biogas claiming an average negative emission profile of -671 CO2/MJ, a new fossil gas plant could earn the same tax credits as a wind turbine by purchasing offsets equivalent to only 14% of its fuel supply.

But what about the profits? If the project claimed the 45Y production tax credit, the answer would depend on the amount of electricity produced. According to the Energy Information Agency, the average size for a new natural gas combined cycle (NGCC) plant is between [500 and 600 megawatt](#). There has been a boom of investment in these new NGCC plants over the past few years, displacing coal as the largest source of energy in our power sector in [2019](#). Because NGCC plants operate less profitably at lower outputs, these new plants are [economically threatened](#) by the expansion of renewable energy. The utilization rate of NGCC plants varies widely by region, but [in 2022 the national average was 57%](#).

This means that an average-sized new NGCC plant operating at average capacity and claiming the maximum value of the credit would earn an annual \$90.6 million. Although the credit can be claimed for ten years, its value depends on utilization and is therefore subject to numerous factors. Higher fossil gas prices from LNG exports could drive down usage, or new energy demand from data centers could drive it up. Conversely, the tax credit could also create a financial incentive for eligible fossil gas projects to be run more frequently.

The Inflation Reduction Act includes [tax subsidies](#) to support biogas capture infrastructure separate from 45Y and 48E. These incentives will likely drive down the cost curve for

biogas investments in the years ahead. Nevertheless, the current range of cost estimates for producing biogas indicates a high return on investment (ROI) for fossil gas plants claiming the credit with offsets. **If they earn the full value of the PTC at \$33 per MWh, new fossil methane plants could see over a 100% return on investment simply by purchasing offsets.**

The size of the profit Big Oil can make off the clean electricity credit depends on how cheaply they can find biogas offsets, so will vary depending on their source. It will also depend how stringently Treasury evaluates the emissions impact of methane leakage, which is infamously undercounted by current modeling. But even at the higher estimates below, 45Y is a lucrative cash grab for oil executives:

Table 3: Profitability of Biogas Offsets

Cost of Biogas Offsets (\$/mmBTU)	Cost for NGCC to qualify Low Methane Scenario (\$/MWH)	Cost for NGCC to qualify High Methane Scenario (\$/MWH)	ROI Low Methane Scenario	ROI High Methane Scenario
\$7 (low range for methane biogas by 2040, <u>ICF</u>)	\$6.47	\$7.43	410%	344%
\$15 (average cost of production, <u>S&P Global Commodity Insights</u>)	\$13.87	\$15.93	138%	107%
\$18.8 (low range for factory farm gas, <u>ICF</u>)	\$17.38	\$19.96	90%	65%
\$20 (High range for methane biogas by 2040, <u>ICF</u>)	\$18.49	\$21.24	79%	55%
\$25 (High range for voluntary market, <u>S&P Global Commodity Insights</u>)	\$23.11	\$26.55	43%	24%
\$32.6 (High range for factory farm gas, <u>ICF</u>)	\$30.13	\$34.62	10%	-5%

The cost of biogas offsets is very likely to go down over time given the proliferation of other state and federal incentives supporting the cost of building new digesters and capture infrastructure. Other factors that could decrease the costs include Oil Majors following the path of Shell and BP by investing directly in their own supply of methane biogas, or lobbyists successfully removing the first productive use requirement proposed by Treasury in their guidance. Even prior to the passage of massive new subsidies under the Bipartisan Infrastructure Act and Inflation Reduction Act, The American Gas Foundation estimated that as the industry expands, most methane biogas will be sold between \$7-\$20/MMBtu. At these rates, Big Oil stands to gain a massive profit from 45Y, while doing nothing to actually address fossil pollution.

The Big Ask from Big Oil and Big Ag

Biogas producers do not feign ignorance about the role their carbon scam has in enriching the fossil industry. In fact, the RNG Coalition wants the Treasury Department to explicitly advertise their [offset services](#) to fossil gas power producers by publishing “*the minimum share of low carbon gas volumes in a C&G facility’s gas inputs for eligibility to claim a GHG emissions rate value of zero*”. They also want Treasury’s assistance in [greenwashing](#) these offsets by rebranding them, requesting that “*for the avoidance of doubt, we suggest that the final rules clarify accounting for avoided emissions are not offsets*”. This is ultimately a meaningless distinction. Even if the biogas industry’s carbon claims were correct, the existence of a digester producing methane biogas on a factory farm in Illinois does not erase the pollution emitted by a fossil gas power plant in Pennsylvania. All offsets are capable of disguising our true emissions while concentrating pollution hotspots.

Allowing fossil gas to purchase offsets in order to qualify as clean electricity would be an irrevocably dangerous precedent. Never before have energy tax credits allowed claimants to purchase offsets that allowed them to claim the subsidy despite not qualifying on their own merit.

The clean electricity tax credits are intended to incentivize investment in expanding legitimately zero emission energy production, with particular attention to communities that have historically been targeted by the fossil industry. But Big Ag and Big Oil’s scheme for offsets would achieve the opposite - turning the credit into a massive new subsidy that drives the expansion of fossil gas power plants.

Burning our forests and trash

Methane biogas is not the only loophole that polluters are targeting in order to co-opt clean electricity subsidies. For decades, burning trash and our forests have benefited from a carveout in the soon expiring renewable electricity tax credit. But now, the new

clean electricity technology neutral credit offers the Biden Administration to end this long-standing subsidy. However, this hinges on Treasury adopting a rigorous and climate-relevant implementation of 45Y and 48E.

Lobbyists for the logging and wood burning industries are well versed in pushing the unscientific premise that burning wood should be treated as having no emissions. This has been a dangerous strategy that has driven clear cuts, exacerbated the climate crisis, and polluted heavily into communities. Wood burning is extremely toxic at every stage of the supply chain. Clearcuts weaken our ability to rein in GHG emissions while also undermining climate resilience to rapidly worsening disasters caused by the climate crisis. Trees that are burned emit more greenhouse gasses at the smokestack than even [coal](#). Wood pellet mills are huge sources of pollution in nearby communities. Clearcutting forests simultaneously destroys their carbon sequestration potential while weakening the ecosystem's ability to weather increasing climate chaos.

Despite the costs of burning our forests to communities and the climate, lobbyists are arguing that burning wood should be subsidized on par with non-combustion and actually sustainable energy. Enviva, the world's largest wood pellet producer, [argues that they should be not be held to the strict lifecycle analysis required for all combustion based energy](#); *"we believe 'Biomass Energy Facilities' should be collectively treated as a 'Type or Category of Facilities' with emissions not greater than zero, provided it can be demonstrated that lifecycle emissions are negligible. It would also align biomass with the non-combustion and gasification pathways in 45Y, which are not required to use the same broad boundaries for lifecycle assessment despite some sources having significant upstream emissions."*

Trash incinerators are another heavily polluting industry that is attempting to portray itself as low or even negative emission energy producers. A [meta-analysis](#) of energy sources found that trash incineration is the most costly way to produce energy for a society. These incinerators [target](#) low-wealth or communities of color, where they can pollute with impunity. For decades, incinerators have raked in [over \\$40 million each year](#) in taxpayer subsidies. Now at risk of losing their long held carveout when the clean electricity tax credit kicks in, the incinerator industry is grasping for a new lifeline.

Incinerator lobbyists are hoping to pull a similar carbon scheme to the wood and biogas industries - set an unrealistically narrow comparison that makes incineration emissions seem comparatively better than they actually are. The-Waste-to-Energy Association (WTEA), which represents the vast majority of incinerators operating in the US, [argues](#) that *"landfilling should be the business-as-usual baseline for LCA purposes."* WTEA correctly highlights in their comments that landfills are huge sources of pollution and their emissions are chronically underreported. However, comparing incineration to landfills does not change the core fact that incineration is far from zero emissions.

Using baseline emissions as a comparison point is not accurate if the baseline does not consider a suite of alternatives that offer the best justice and climate outcomes. For waste, the EPA has already outlined these alternatives in their [hierarchy of waste management](#). As WTEA states in their comments; “*a natural gas plant cannot assume a deduction for avoiding coal-fired electricity generation*”. Likewise, the emissions from burning trash do not disappear because ‘it avoids landfilling’. Ultimately, these industries cannot qualify as clean electricity on their merits and Treasury must reject their attempts to weaken the standard.

What’s next for the Clean Electricity Credit?

The Biden Administration is on the cusp of a number of decisions that will shape our ability to address the climate crisis. The Clean Electricity credit will be one of their most influential decisions to clean up our power sector. This credit offers an important opportunity to ensure that. But it is crucial that the Treasury Department adopts a rigorous definition of ‘zero emission’ that is driven by the best available science and not profit driven industry talking points. Any concessions to Big Oil and Big Ag’s loopholes will debilitate our ability to avert the worst of the climate crisis.

Appendix

We assume average fossil gas plant emissions to be between 108.7-121.3 grams of CO₂e/MJ. This is based on the EPA's efficient generation standard in the 111 rule for new combined cycle plants, adjusted upwards to reflect upstream methane leakage. The high methane scenario assumes upstream leakage is 2.9% and that gas power plants have a heat rate of 6.94 mmBTU to MWh. The low methane scenario assumes that upstream leakage will be undercounted, at 1.4%, and that new gas power plants have a heat rate of 6.65 mmBTU to MWh. Both scenarios use the hundred-year global warming potential (GWP) of methane of 27.

The average negative CI for dairy biogas is based on existing dairy biogas-to-electricity pathways in the CA LCFS. We reached the list by eliminating retired pathways and selecting "electricity" as the fuel source and "dairy manure" as the feedstock.