

March 3, 2026

Washington Department of Ecology  
Climate Pollution Reduction Program

**Re: Comment in Response to Clean Fuels Standard Rulemaking Informal Comment Period,  
Chapter 173-424 WAC**

The Center for Food Safety, Food & Water Watch, Friends of the Earth, Friends of Toppenish Creek, Animal Legal Defense Fund, APIC-Yakima, 350 Seattle and South Seattle Climate Action Network respectfully submit these comments in response to the Department of Ecology's (Ecology) proposed updates to the Clean Fuels Program Rule, WAC 173-424. These comments focus on Ecology's proposal to update the WA-GREET model. To achieve the Clean Fuel Standard's (CFS) climate objectives, Ecology must ensure that WA-GREET 4.0 uses rigorous, full life-cycle accounting that reflects the true "well-to-wheel" emissions from manure-derived biomethane (also known as factory farm biogas) production. Ecology should also apply its recently adopted "avoided methane crediting" for factory farm biogas in a careful and conservative way to reduce the perverse incentives built into the policy.

Despite widespread concerns from the undersigned commenters and others shared during Ecology's 2025 rulemaking, Ecology's CFS rules permit concentrated animal feeding operations (CAFOs) to utilize "avoided methane crediting" to determine the carbon intensity of factory farm biogas. Under this approach, factory farms can be rewarded for capturing manure methane emissions even when those emissions are *intentionally generated*. This raises a serious concern that the level of incentive granted by the CFS could increase perverse outcomes where CAFO operators are encouraged to maintain or expand their highly polluting operations, utilizing the most methane-intensive manure management strategies, in order to maximize credit generation and associated subsidies, thereby entrenching practices that harm the environment, the climate, and the health of nearby communities. This is already happening in response to other clean fuels programs that have allowed an unfettered race to the bottom with respect to factory farm biogas and avoided methane crediting. Ecology must guard against the CFS doing the same when updating WA-GREET.

To mitigate the perverse incentive effects of avoided methane crediting and ensure integrity in the CFS's well-to-wheel lifecycle accounting for factory farm biogas, we urge Ecology to:

- Adopt the generic counterfactual approach as a background value in WA-GREET 4.0 for avoided methane crediting and factory farm biogas; and
- Account for the full scope of greenhouse gas emissions from industrial livestock operations producing factory farm biogas to capture both the upstream and downstream emissions, as well as realistic fugitive emissions assumptions associated with its production in WA-GREET 4.0.

**I. Interest of Commenters**

**Center for Food Safety**

The Center for Food Safety is a public interest, non-profit membership organization that works to protect human health, the environment and climate by, among other things, curbing the proliferation of harmful food production technologies and by promoting sustainable agriculture. The Center for Food Safety represents over one million members nationwide who support sustainable

agriculture and has approximately 25,000 members in Washington state. Center for Food Safety members in Washington live, work, and recreate in areas directly adjacent to polluting CAFOs and digesters, and care about or experience the impacts of factory farm biogas operations on air quality and climate.

The Center for Food Safety has engaged in legislative, regulatory, and legal advocacy to dispel the myth that factory farm biogas is “renewable” or a real solution to the climate crisis.<sup>1</sup> The Center for Food Safety has also invested significant resources into bringing mega-dairies in Washington into compliance with our federal laws protecting surface and groundwater, particularly the drinking water for residents of the Lower Yakima Valley.<sup>2</sup> As such, the Center for Food Safety has a serious interest in preventing the further entrenchment of large industrial dairies in the Yakima Valley and Washington state overall, where herd size increase is the inevitable outcome of making cow waste more profitable. The Center for Food Safety and its members thus have an interest in ensuring that WA-GREET 4.0 does not perpetuate harmful incentives that increase reliance on polluting factory dairies.

### **Friends of the Earth**

Friends of the Earth, founded by David Brower in 1969, fights to create a healthy and just world. We are 4.7 million members and activists across all 50 states working to make this vision a reality. Our Food & Agriculture Program works to rapidly transition our food system to one that is sustainable, healthy, and just via markets and policy advocacy, strategic communications, organizing, and cutting-edge science. We seek three fundamental shifts in our food system: from toxic and chemical-intensive to healthy and ecologically regenerative; from corporate-controlled to democratically governed; and from a system that embodies the deepest inequities in our society to one that advances justice and fulfills the needs of all eaters now and in the future.

As part of this work, Friends of the Earth has raised significant concerns about the rapid expansion of anaerobic digesters on CAFOs and the growing public subsidies that support them, including through Washington’s CFS. Factory farm biogas projects risk entrenching and incentivizing the continued growth and consolidation of industrial livestock production, deepening environmental and public health harms in already overburdened communities. Friends of the Earth advocates for policies across the country that prioritize the reduction of methane emissions at the source and ensure that climate and clean energy programs do not underwrite the expansion of factory farming.

### **Friends of Toppenish Creek**

Friends of Toppenish Creek (FOTC) is a non-profit organization incorporated in Washington and located in Yakima County. FOTC is dedicated to protecting the rights of rural communities and

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<sup>1</sup> See, e.g., *Defensores del Valley Central para al Aire y Agua Limpio v. Cal. Air Res. Board*, <https://www.foodandwaterwatch.org/wp-content/uploads/2025/07/2025.07.25-Defensores-et-al.-v.-CARB-II-Petition-Complaint-Final.pdf>.

<sup>2</sup> See, e.g., *Cnty. Ass’n for Restoration of the Env’t, Inc. v. Cow Palace, LLC*, 80 F. Supp. 3d 1180 (E.D. Wash. 2015) (holding that defendant Cow Palace dairy posed an imminent and substantial endangerment to the public in Yakima); *Cnty Ass’n for Restoration of the Env’t, Inc. v. George Deruyter & Son Dairy*, 2:13-CV-03017 (E.D. Wash. 2013); *Cnty. Ass’n for Restoration of the Env’t, Inc. v. D & A Dairy*, 2:13-CV-03018 (E.D. Wash. 2013); *Cnty. Ass’n for Restoration of the Env’t, Inc. v. Henry Bosma Dairy*, 2:13-CV-03019 (E.D. Wash. 2013); *Cnty. Ass’n for Restoration of the Env’t, Inc. v. R & M Haak, LLC*, 2:13-CV-03026-EFS (E.D. Wash. 2013).

improving oversight of industrial agriculture. FOTC operates under the simple principle that all people deserve clean air, clean water and protection from abuse that results when profit is favored over people. FOTC works through public education, citizen investigations, research, legislation, special events, and direct action, as well as providing public comments on proposed rules and development projects.

FOTC works tirelessly to protect the rights of our members and community against groundwater and air contamination generated by CAFOs. FOTC's members live in the Lower Yakima Valley and are encircled by CAFOs with historic, ongoing and well-documented records of pollution and adverse impacts.<sup>3</sup> Low-income, Hispanic, and indigenous people constitute most of the region's population and are disproportionately impacted by this factory farm pollution. FOTC members now also face threats to their health and safety due to a proposed biogas plant in the heart of the Lower Yakima Valley, which is only supported by the current regulatory framework's harmful incentives.<sup>4</sup> FOTC's organizational advocacy and individual members are injured by the avoided methane credit rule and the current WA-GREET model.

### **Food & Water Watch**

Food & Water Watch is a national, nonprofit membership organization that mobilizes regular people to build political power to move bold and uncompromised solutions to the most pressing food, water, and climate problems of our time. FWW uses grassroots organizing, media outreach, public education, research, policy analysis, and litigation to protect people's health, communities, and democracy from the growing destructive power of the most powerful economic interests.

Food & Water Watch has worked extensively on issues related to factory farm biogas production and incentives. This includes research, public education, legislative and administrative advocacy, and litigation.

### **Animal Legal Defense Fund**

The Animal Legal Defense Fund (ALDF) is a national nonprofit organization founded in 1979 to protect the lives and advance the interests of animals through the legal system. ALDF has more than 300,000 members and supporters nationwide. One of ALDF's central goals is advocating for effective oversight and regulation of industrial animal agriculture. ALDF achieves this goal by, among other things, filing lawsuits, administrative comments, and rulemaking petitions. Through these efforts, ALDF is deeply invested in reforming the agricultural system.

### **Asian Pacific Islander Coalition (APIC)-Yakima**

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<sup>3</sup> See, e.g., Leah Beth Ward, *Hidden Wells, Dirty Water*, Yakima Herald Republic (October 12, 2008), [https://www.yakimaherald.com/news/local/from-2008-hidden-wells-dirty-water-part-1-no-systemic-testing/article\\_4740dd5e-2a77-11ee-bc0b-cf5ce75ef088.html](https://www.yakimaherald.com/news/local/from-2008-hidden-wells-dirty-water-part-1-no-systemic-testing/article_4740dd5e-2a77-11ee-bc0b-cf5ce75ef088.html) (Part 1) and [https://www.yakimaherald.com/news/local/from-2008-hidden-wells-dirty-water-part-2-wheres-the-accountability/article\\_bd7fd6ae-2a78-11ee-bec7-3f4ff3c36eb8.html](https://www.yakimaherald.com/news/local/from-2008-hidden-wells-dirty-water-part-2-wheres-the-accountability/article_bd7fd6ae-2a78-11ee-bec7-3f4ff3c36eb8.html) (Part 2); George Kimbrell and Sylvia Wu, *Facing facts about dairy pollution in Yakima Valley*, Capital Press (May 8, 2025), <https://capitalpress.com/2025/05/08/facing-facts-about-dairy-pollution-in-yakima-valley/>.

<sup>4</sup> Yakima Regional Clean Air Agency, *Draft Order of Approval for a Renewable Natural Gas (RNG) Production Facility* (February 2026), [https://www.yakimacleanair.org/site/files/file\\_manager/page/shared/Order\\_of\\_Approval-Pacific\\_Ag\\_Renewables-February\\_2026.pdf](https://www.yakimacleanair.org/site/files/file_manager/page/shared/Order_of_Approval-Pacific_Ag_Renewables-February_2026.pdf).

The Asian & Pacific Islander Coalition (APIC) is dedicated to advancing and restoring the civil and human rights of and racial and economic justice for all Asians and Pacific Islanders in solidarity with Black, Brown, and Indigenous communities. APIC-Yakima brings together Americans of Asian, Native Hawaiian, and Pacific Islander ancestry who live and work in Yakima Valley. Environmental standards are not being followed properly through self-regulation or the local Clean Air Authority in the Yakima Valley, so APIC-Yakima advocates for proper research and data to be used in rulemaking.

### **350 Seattle**

350 Seattle's mission is to work towards climate justice by organizing people to make deep systems change: resisting fossil fuels, building momentum for healthy alternatives; and fostering resilient, just, and welcoming communities. Since 2020, a committed group of volunteers at 350 Seattle has been learning about and advocating for ways to change our agricultural system away from the current corporate-dominated and environmentally harmful approach to agriculture, towards a system that is sustainable, environmentally sound, and supportive of communities and the planet.

### **South Seattle Climate Action Network**

South Seattle Climate Action Network is a community of concerned citizens seeking to address climate justice via community building, working with elected officials, and partnering with allied organization. We are a grassroots, all-volunteer organization that seeks to develop strong relationships with our South Seattle legislators to support meaningful environmental and climate legislation.

South Seattle Climate Action Network is invested in an update to Ecology's primary carbon intensity determination tool, the WA-GREET model, to WA-GREET 4.0 to ensure the use of the most up-to-date scientific methodology as well as other technical improvements to support policy implementation, such as aligning with other low carbon fuel programs per RCW 70A.535.060. Transportation is Washington's largest source of greenhouse gas emissions. Reducing the carbon intensity of this sector will increase availability of low carbon transportation fuel in Washington, in turn reducing greenhouse gas emissions from entering the atmosphere and improving air quality.

## **II. Factory Farm Biogas Production Is Harmful**

For years now, frontline communities and environmental advocates have raised environmental justice, public health, and market concerns about incentivizing factory farm biogas production.<sup>5</sup> The heavily polluting livestock facilities that factory farm biogas projects depend on generate massive amounts of waste that threaten rural economies, public health, and quality of life

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<sup>5</sup> Friends of the Earth et al., *Letter to Secretary Vilsack and Undersecretary Torres Small* (June 13, 2023), <https://foe.org/wp-content/uploads/2023/06/REAP-Letter-USDA-June-2023.pdf>; Friends of the Earth et al., *Letter to Secretary Vilsack* (October 25, 2023), [https://foe.org/wp-content/uploads/2023/10/Final\\_-\\_Sign-on\\_-\\_Opposition-to-Factory-Farm-Gas-Funding-and-Practices-in-IRA.pdf](https://foe.org/wp-content/uploads/2023/10/Final_-_Sign-on_-_Opposition-to-Factory-Farm-Gas-Funding-and-Practices-in-IRA.pdf); Press Release, Food & Water Watch, 160+ Groups from Across U.S. Call on CARB to Amend Disastrous California Pollution Credit Trading Scheme (Feb. 15, 2024), <https://www.foodandwaterwatch.org/2024/02/15/160-groups-from-across-u-s-call-on-carb-to-amend-disastrous-california-pollutioncredit-trading-scheme/>; Press Release, Leadership Counsel for Justice and Accountability, California Air Resources Board fails communities and state transportation goals with approval of staff's harmful approach to the Low Carbon Fuel Standard (Nov. 12, 2024), <https://leadershipcounsel.org/california-air-resources-board-fails-communities-and-state-transportation-goals/>.

for those who live nearby, who are disproportionately communities of color and low-wealth communities.<sup>6</sup> CAFOs are often intentionally located in areas where marginalized communities lack the political or economic power to adequately address the negative impacts these industrial facilities have on their communities.<sup>7</sup> Moreover, many of these same communities are dealing with other forms of pollution and public health risks, creating cumulative impacts.

Most factory farms store the waste they generate as liquid wastewater in giant manure lagoons and periodically spread it on fields to dispose of it. The untreated waste, often spread in excess, can contaminate the soil and run off into waterways, causing harmful downstream effects.<sup>8</sup> Liquid manure also emits hazardous gases and particulate matter, causing toxic air emissions and noxious odor.<sup>9</sup> Studies have shown that people living near factory farms face higher risk and severity of respiratory illnesses, digestive issues, headaches, and other serious health conditions.<sup>10</sup> From a climate perspective, adding water to manure and storing it in these conditions generates high levels of methane emissions. These climate-harming emissions from manure are avoidable when the waste is not left to rot in anaerobic cesspools, and there are alternative manure management practices, such as composting and dry scraping, that emit far less methane.<sup>11</sup>

Yet Washington's CFS reinforces the very system that drives these harms. By allowing profitable "avoided methane" credits for factory farms, the program could further embed and incentivize high-methane liquid management systems (and their emissions) rather than lower-emission (and often far less expensive) alternatives. In contrast, smaller and more sustainable farms that manage manure through practices that largely avoid methane creation in the first place cannot

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<sup>6</sup> ROLF U. HALDEN & KELLOGG J. SCHWAB, ENVIRONMENTAL IMPACT OF INDUSTRIAL FARM ANIMAL PRODUCTION (2008), <https://law.lclark.edu/live/files/6699-environmental-impact-of-industrial-farm-animal>; CARRIE HRIBAR, NAT'L ASS'N OF LOCAL BODS. OF HEALTH, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 2-3 (2010), [https://www.cdc.gov/nceh/ehs/docs/understanding\\_cafos\\_nalboh.pdf](https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf); Am. Public Health Ass'n, *Precautionary Moratorium on New and Expanding Concentrated Feeding Operations* (Nov. 4, 2019), <https://www.apha.org/policy-and-advocacy/public-health-policybriefs/policy-database/2020/01/13/precautionary-moratorium-on-new-and-expanding-concentrated-animal-feedingoperations>; Letter from Friends of Toppenish Creek, Yakima County Air Quality Issues (Sept. 6, 2022), [https://healthequity.wa.gov/sites/default/files/2022-09/Tab05b\\_Letters%20from%20Friends%20of%20Toppenish%20Creek\\_2022-09-15.pdf](https://healthequity.wa.gov/sites/default/files/2022-09/Tab05b_Letters%20from%20Friends%20of%20Toppenish%20Creek_2022-09-15.pdf).

<sup>7</sup> MARY K. HENDRICKSON ET AL., THE FOOD SYSTEM: CONCENTRATION AND ITS IMPACTS I (2020), <https://farmaction.us/wp-content/uploads/2020/11/Hendrickson-et-al.-2020.-Concentration-and-Its-Impacts-FINAL.pdf>; Kelley J. Donham et al., *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*, 115 ENVIRON HEALTH PERSPECT 317, 318 (2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1817697/>.

<sup>8</sup> *Id.*; Joan A. Casey et al., *Industrial Food Animal Production and Community Health*, 2 CURRENT ENVT'L HEALTH REPORTS 259, 259-60 (March 2015); U.S. Env't Prot. Agency, Lower Yakima Valley Groundwater, <https://www.epa.gov/wa/lower-yakima-valley-groundwater> (last updated June 16, 2025).

<sup>9</sup> Maria C. Mirabelli et al., *Race, Poverty, and Potential Exposure of Middle-School Students to Air Emissions from Confined Swine Feeding Operations*, 114 Env't Health Perspectives 591-596 (2006), <https://doi.org/10.1289/ehp.8586>; Ji-Young Son, Marie Lynn Miranda & Michelle L. Bell, *Exposure to Concentrated Animal Feeding Operations (CAFOs) and Risk of Mortality in North Carolina, USA*, 799 Sci Total Environ 149407 (2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8530906/>.

<sup>10</sup> *Id.* Christine Loftus et al., *Ambient Ammonia Exposures in an Agricultural Community and Pediatric Asthma Morbidity*, 26 Epidemiology 794 (2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4587379/>.

<sup>11</sup> See, Cal. Dept. of Food and Agric., *Recommendations for Short-Lived Climate Pollutants* (June 2015), at 12-13, [https://www.cdafa.ca.gov/oefi/climate/docs/SLCP\\_Reommendations.pdf](https://www.cdafa.ca.gov/oefi/climate/docs/SLCP_Reommendations.pdf) ("[M]ethane emissions can be dramatically reduced – perhaps by more than 90 percent – when dry systems are used."). See also RUTHIE LAZENBY, *RETHINKING MANURE BIOGAS* 29 (2022), [https://www.vermontlaw.edu/wp-content/uploads/2024/07/Rethinking\\_Manure\\_Biogas-1.pdf](https://www.vermontlaw.edu/wp-content/uploads/2024/07/Rethinking_Manure_Biogas-1.pdf) (Alternatives include, "solid separators that reduce methane-producing slurries; providing conservation assistance for transitions to alternative manure management systems, such as deep pits, composting, transitions to pasture, or other practices that have a lower greenhouse gas profile.").

convert their beneficial practices into revenue through the CFS.<sup>12</sup> The result is an absurd competitive advantage for large-scale livestock operations that first create methane-intensive waste systems and are then subsidized for capturing the pollution those systems generate.<sup>13</sup>

Not only does factory farm biogas production fail to address the aforementioned environmental and public health concerns from factory farms, but its production introduces new issues for communities living near CAFOs and biogas plants. These include increased production of ammonia pollution from anaerobic digestion,<sup>14</sup> higher concentrations of nutrients in digestate, the byproduct of digestion, which contribute to water pollution,<sup>15</sup> increased disruption and pollution from new pipelines and trucks to transport manure or biomethane through communities, and more toxic air pollution from biogas processing than is produced by fossil gas.<sup>16</sup> Ecology professes a commitment to environmental justice and addressing the disparate impacts of environmental pollution on low-income communities and communities of color.<sup>17</sup> Yet, Washington's CFS risks reinforcing and perpetuating those very inequities.

When programs like Washington's CFS give preferential treatment to factory farm biogas systems, these operations are encouraged to produce even more gas, in the most methane-intensive manner, to take advantage of the subsidies. Studies show this is often done by factory farms growing their herd sizes, ultimately increasing greenhouse gas emissions and exacerbating existing harm from CAFO pollution.<sup>18</sup>

While Ecology has already adopted the general framework of avoided methane crediting for factory farm biogas, it can still limit some of the most perverse outcomes by adopting the generic counterfactual baseline discussed below. Ecology must also ensure that the updated WA-GREET 4.0

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<sup>12</sup> RUTHIE LAZENBY, MITIGATING EMISSIONS FROM CALIFORNIA'S DAIRIES: CONSIDERING THE ROLE OF ANAEROBIC DIGESTERS IN MITIGATING EMISSIONS FROM CALIFORNIA'S DAIRIES 16 (2024),

[https://law.ucla.edu/sites/default/files/PDFs/Publications/Emmett%20Institute/UCLA\\_Emmett\\_CA\\_Dairies\\_1%2018%2024.pdf](https://law.ucla.edu/sites/default/files/PDFs/Publications/Emmett%20Institute/UCLA_Emmett_CA_Dairies_1%2018%2024.pdf).

<sup>13</sup> Kevin Fingerma et al., *Risks of Crediting Carbon Offsets in Low Carbon Fuel Standards: Lessons Learned from Dairy Biomethane*, 206 ENERGY POLICY 114738 (2025), <https://www.sciencedirect.com/science/article/pii/S0301421525002459>.

<sup>14</sup> Michael A. Holly et al., *Greenhouse Gas and Ammonia Emissions from Digested and Separated Dairy Manure During Storage and After Land Application*, 239 Agric., Ecosystems & Env't 410, 417-18 (2017),

<https://www.sciencedirect.com/science/article/pii/S0167880917300701>; Thomas Kupper et al., *Ammonia and Greenhouse Gas Emissions from Slurry Storage – A Review*, 300 Agric., Ecosystems & Env't, 1, 14 (2020),

[https://www.researchgate.net/publication/341537214\\_Ammonia\\_and\\_greenhouse\\_gas\\_emissions\\_from\\_slurry\\_storage\\_-\\_A\\_review](https://www.researchgate.net/publication/341537214_Ammonia_and_greenhouse_gas_emissions_from_slurry_storage_-_A_review);

Lowry A. Harper et al., *The Effect of Biofuel Production on Swine Farm Methane and Ammonia Emissions*, 39 J. Env't Quality 1984, 1989 (2010), [https://www.eas.ualberta.ca/jdwilson/Harper\\_etal2010\\_jeq.pdf](https://www.eas.ualberta.ca/jdwilson/Harper_etal2010_jeq.pdf).

<sup>15</sup> *Id.* See also, NRCS, USDA, *Conservation Practice Standard: Anaerobic Digester Code 366*, at 366-CPS-8 to -9 (2023),

[https://www.nrcs.usda.gov/sites/default/files/2023-08/366\\_NHCP\\_CPS\\_Anaerobic\\_Digester\\_2023.pdf](https://www.nrcs.usda.gov/sites/default/files/2023-08/366_NHCP_CPS_Anaerobic_Digester_2023.pdf) (“Land application of [digestate], compared with fresh manure, may have a higher risk for both ground and surface water quality problems” because “[c]ompounds such as nitrogen, phosphorus, and other elements become more soluble due to anaerobic digestion and therefore have higher potential to move with water.”).

<sup>16</sup> Alarico Macor & Alberto Benato, *A Human Health Toxicity Assessment of Biogas Engines Regulated and Unregulated Emissions*, 10 APPLIED SCIENCES 1, 19 (2020), <https://doi.org/10.3390/app10207048>.

<sup>17</sup> See generally Wa. Dep't of Ecology, *Environmental Justice*, <https://ecology.wa.gov/about-us/who-we-are/environmental-justice>.

<sup>18</sup> Varun Magesh et al., *Do Methane Mitigation Incentives Intensify Livestock Production? Evidence from California, 2016-2025* (2025), <https://dho.stanford.edu/wp-content/uploads/digesters.pdf>; CHLOE WATERMAN & MOLLY ARMUS, *BIOGAS OR BULL\*\*\*\*? THE DECEPTIVE PROMISE OF MANURE BIOGAS AS A METHANE SOLUTION* 33-38 (2024), [https://foe.org/wp-content/uploads/2024/02/Factory-Farm-Gas-Brief\\_final-final.pdf](https://foe.org/wp-content/uploads/2024/02/Factory-Farm-Gas-Brief_final-final.pdf);

FOOD & WATER WATCH, *THE BIG OIL AND BIG AG PONZI SCHEME: FACTORY FARM BIOGAS* 6 (2024), [https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RPT2\\_2401\\_GreenwashingBiogas-WEB3.pdf](https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RPT2_2401_GreenwashingBiogas-WEB3.pdf);

Erin Jordan, *Iowa Dairies with Biogas Digesters Are Growing Their Herds, Which Concerns Water Quality Advocates*, *The Gazette* (Nov. 4, 2024),

<https://investigatamidwest.org/2024/11/04/iowa-dairies-with-biogas-digesters-are-growing-their-herds-which-concerns-water-quality-advocates/>.

fully accounts for the greenhouse gas emissions associated with factory farm biogas production, as outlined below. We ask that Ecology include these considerations in its rulemaking process and ultimately adopt them into WA-GREET 4.0.

### **III. Strengthen WA-GREET 4.0**

In order to mitigate the perverse incentives associated with avoided methane credits and ensure proper well-to-wheel lifecycle analyses, Ecology should include a conservative background value for avoided methane crediting and should ensure that WA-GREET 4.0 accurately captures all greenhouse gas emissions associated with factory farm biogas production.

#### **A. Ecology Could Reduce Perverse Incentives by Adopting a Conservative Baseline Value for Factory Farm Biogas in WA-GREET 4.0**

Ecology should adopt a conservative background value for factory farm biogas in WA-GREET 4.0 to reduce the perverse incentives of avoided methane crediting. These perverse outcomes are well understood and documented by a growing body of evidence as explained above and in prior comments to Ecology.<sup>19</sup> Ecology can lessen the adverse effects of allowing avoided methane crediting in the CFS by using the “generic counterfactual” carbon intensity value recently used by New Mexico in adopting rules for its analogous Clean Transportation Fuel Program (“CTFP”) and as developed by the U.S. Department of Energy for federal rulemakings under the Inflation Reduction Act. This is a more conservative approach specifically designed to address the perverse incentive risk associated with manure-derived fuels assigned negative carbon intensity values.

Ecology must “seek to adopt rules that are harmonized” with clean fuels programs in other states, including “compliance requirements and methods for credit generation.”<sup>20</sup> New Mexico is the most recent state to create an analogous clean fuels program, and therefore is instructive. In January 2026, New Mexico adopted final rules for its CTFP, and as part of that rulemaking utilized the “generic counterfactual” developed by the U.S. Department of Energy to set the carbon intensity value of fuels derived from factory farm biogas.<sup>21</sup> This resulted in a carbon intensity of -27.3 gCO<sub>2</sub>e/MJ.<sup>22</sup>

The generic counterfactual approach eases the impact of the perverse incentives associated with avoided methane crediting by looking across manure management practices to establish an average carbon intensity for methane captured from manure management systems.<sup>23</sup> This still allows negative carbon intensity values for methane capture, but does not reward the biggest emitters for having adopted the most harmful, climate-intensive manure management practices. Because high

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<sup>19</sup> See Comments of Food & Water Watch et al. to Wa. Dep’t of Ecology (Aug. 1, 2025), [https://scs-public.s3-us-gov-west-1.amazonaws.com/env\\_production/oid100/did200118/pid\\_211471/assets/merged/go09ioqnyhj\\_document.pdf?v=45341](https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid100/did200118/pid_211471/assets/merged/go09ioqnyhj_document.pdf?v=45341); Comments of Friends of the Earth et al. to Wa. Dep’t of Ecology (Aug. 1, 2025), [https://scs-public.s3-us-gov-west-1.amazonaws.com/env\\_production/oid100/did200118/pid\\_211471/assets/attachments/74850/6i0hikheya1\\_document.pdf?v=44625](https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid100/did200118/pid_211471/assets/attachments/74850/6i0hikheya1_document.pdf?v=44625).

<sup>20</sup> WAC 70A.535.060.

<sup>21</sup> New Mexico Environment Department, Testimony of Angela Raso (Exhibit 67) at 32–33, available at <https://www.env.nm.gov/opf/wp-content/uploads/sites/13/2025/09/Ex-63-69.pdf>.

<sup>22</sup> *Id.*

<sup>23</sup> See U.S. Department of Energy, A Generic Counterfactual Greenhouse Gas Emission Factor for Life-Cycle Assessment of Manure-Derived Biogas and Renewable Natural Gas (Jan. 2025), [https://www.energy.gov/sites/default/files/2025-01/generic-counterfactual-greenhouse-gas-emission-factor-for-life-cycle-assessment-of-manure-derived-biogas-and-renewable-natural-gas\\_010225.pdf](https://www.energy.gov/sites/default/files/2025-01/generic-counterfactual-greenhouse-gas-emission-factor-for-life-cycle-assessment-of-manure-derived-biogas-and-renewable-natural-gas_010225.pdf).

manure methane emissions are a deliberate choice factory farms make when choosing how they will manage their waste and can be dramatically reduced with better management, this approach is the best way to avoid excessively rewarding the worst actors under Ecology's CFS regulations.

This is a different approach from other states' programs, such as California's Low Carbon Fuel Standard (LCFS), which allows applicants to input their own foreground data and can result in massively negative carbon intensity values as low as -790 gCO<sub>2</sub>e/MJ. But by allowing applicants to input their own data into the CA-GREET models, California has enabled the perverse outcome where the biggest polluters get the biggest reward and factory farms intentionally adopt climate-intensive practices to lower their carbon intensity values to increase credit generation and profit.

This counterproductive response to clean fuels policies was exactly why the federal government developed the generic counterfactual for factory farm biogas. As the U.S. Department of Treasury explained, "the magnitude of the incentive provided by [Inflation Reduction Act] credit itself creates a significant risk of additional waste production in response to the credit" which "could result in additional emissions" that must be accounted for to ensure program integrity.<sup>24</sup> Therefore, the Department of Treasury worked with the U.S. Department of Energy to establish an administrable way of assigning carbon intensity values while also guarding against perverse incentives. The result was the generic counterfactual approach. This approach helps reduce perverse incentives because it does not reward the worst polluters with the most lucrative carbon intensity scores nor does it penalize operators that effectively reduce their manure methane emissions with simple interventions like liquid-solid separation (but that do not produce biogas and therefore do not generate CFS credits).

While the generic counterfactual approach does not eliminate all potential for perverse incentives to materialize and undermine the CFS and Washington's climate efforts, it is a simple way to limit the adverse effects of allowing avoided methane crediting. Therefore, Commenters ask that Ecology adopt the generic counterfactual approach as a background value in WA-GREET 4.0.

## **B. WA-GREET 4.0 Must Account for Upstream and Downstream Emissions**

Ecology must ensure that WA-GREET 4.0 accounts for the full climate impacts of the industrial livestock operations producing factory farm biogas, particularly if the agency is going to claim the CFS reduces greenhouse gas emissions from animal agriculture.<sup>25</sup>

Animal agriculture is a major contributor to climate change, responsible for approximately 36 percent of U.S. methane emissions,<sup>26</sup> 20 percent of global greenhouse gas emissions and 57 percent of food-related emissions.<sup>27</sup> Biomethane production requires constant and large volumes of livestock

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<sup>24</sup> Credit for Production of Clean Hydrogen and Energy Credit, 90 Fed. Reg. 2224, 2290 (Jan. 10, 2025); Section 45Y Clean Electricity Production Credit and Section 48E Clean Electricity Investment Credit, 90 Fed. Reg. 4006, 4080–81 (Jan. 15, 2025).  
<sup>25</sup> Lazenby, *supra* note 7 at 19. In its Final Regulatory Analyses, Ecology does claim that allowing avoided methane crediting is "in the interest of mitigating methane emissions and meeting the state's greenhouse gas emissions reduction targets," already indicating that the CFS will reduce greenhouse gas emissions from the livestock sector. WASH. STATE DEP'T OF ECOLOGY, FINAL REGULATORY ANALYSES: CLEAN FUELS PROGRAM RULE 131 (2025), <https://apps.ecology.wa.gov/publications/documents/2514093.pdf>.

<sup>26</sup> U.S. Env't Prot. Agency, *Methane Emissions*, (Jan. 7, 2025), <https://www.epa.gov/ghgemissions/methane-emissions>.

<sup>27</sup> Walter Willett, MD et al., *Food in the Anthropocene: the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems*, THE LANCET (January 16, 2019), [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4); Andrea Thompson, *Here's How Much Food Contributes to Climate Change*, SCIENTIFIC AM. (Sep. 13, 2021), <https://www.scientificamerican.com/article/heres-how-much-food-contributes-to-climate-change>.

manure—and thus livestock. Since the livestock sector’s greenhouse gas emissions do not begin at manure storage, neither should the life-cycle analysis for manure-derived biomethane under the CFS. To be grounded in reality, WA-GREET 4.0 must capture all of the emissions associated with factory farm biogas production. This encompasses all upstream emissions from livestock production, including emissions associated with feed production and transportation, enteric emissions, and emissions from the collection and transportation of manure to the lagoons, among others.<sup>28</sup> An accurate life-cycle analysis requires accounting for all downstream emissions as well. In particular, this includes the increased greenhouse gas emissions when operators store and dispose of digestate, which releases high rates of both methane and nitrous oxide.<sup>29</sup>

### C. WA-GREET 4.0 Must Account for Realistic Fugitive Emissions Assumptions

WA-GREET 4.0 must also assume realistic fugitive emissions from digesters and related infrastructure. Research has shown that digesters and biogas supply chains regularly leak, releasing additional greenhouse gases into the atmosphere, further undermining any climate mitigation potential of this approach.<sup>30</sup> In California, CA-GREET uses a default methane capture efficiency of 95 percent for lagoon digesters and 98 percent for fully enclosed vessels, unless a pathway applicant discloses otherwise.<sup>31</sup> However, the state does not monitor emissions at the facility level, and so it would not be aware of any fugitive emissions. In fact, a 2023 paper estimated methane emissions from dairies in California using mobile optical remote sensing and found that facilities presumed to have digesters did not emit significantly less methane than facilities without digesters.<sup>32</sup> Across all CAFOs in the study, measured methane emissions were 60% higher than the rates reported in the California Air Resources Board (CARB) inventory.<sup>33</sup> This is consistent with other research that has shown that biogas systems emit methane at a far higher rate than regulatory bodies estimate.<sup>34</sup>

WA-GREET 3.0 uses the exact same default methane capture efficiency as CA-GREET, and, like CARB, Ecology has no plan to monitor digesters or any associated infrastructure once these items are installed.<sup>35</sup> Thus, in light of the evidence, the baseline assumption by the agency cannot be that every biogas system is working perfectly. Instead, we urge Ecology to consider the best available science on leakage rates across the supply chain and account for it in WA-GREET 4.0 accordingly.

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<sup>28</sup> *Id.*; Lazenby, *supra* note 7 at 18.

<sup>29</sup> Holly et al., *supra* note 9.

<sup>30</sup> See Semra Bakkaloglu et al., *Methane Emissions Along Biomethane and Biogas Supply Chains Are Underestimated*, 5 ONE EARTH 724–736 (June 17, 2022), <https://www.sciencedirect.com/science/article/pii/S2590332222002676>; YUANRONG ZHOU ET AL., LIFE-CYCLE GREENHOUSE GAS EMISSIONS OF BIOMETHANE AND HYDROGEN PATHWAYS IN THE EUROPEAN UNION (2021), <https://theicct.org/sites/default/files/publications/lca-biomethane-hydrogen-eu-oct21.pdf>; Thomas K. Flesch, Raymond L. Desjardins & Devon Worth, *Fugitive Methane Emissions from an Agricultural Biodigester*, 35 BIOMASS & BIOENERGY 3927 (2011), <https://www.sciencedirect.com/science/article/abs/pii/S0961953411003333>.

<sup>31</sup> CARB, Tier 1 Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure, <https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation> (Reference Tab, Table A.3).

<sup>32</sup> N. T. Vecchi et al., *Ammonia and Methane Emissions from Dairy Concentrated Animal Feeding Operations in California, Using Mobile Optical Remote Sensing*, 293 Atmospheric Environment 119448 (2023), <https://www.sciencedirect.com/science/article/pii/S1352231022005131>.

<sup>33</sup> *Id.*

<sup>34</sup> Bakkaloglu et al., *supra* note 18; Food & Water Watch, *The Proof Is in the Plumbing: Factory Farm Biogas Has no Place in the Low Carbon Fuel Standard* (Feb. 2024), [https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RB\\_2401\\_LCFS\\_Methane.pdf](https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RB_2401_LCFS_Methane.pdf).

<sup>35</sup> See, Wa. Dep’t of Ecology, Tier 1 Fuel Calculators, Dairy and Swine Manure, <https://ecology.wa.gov/air-climate/reducing-greenhouse-gas-emissions/clean-fuel-standard/fuel-pathways-and-carbon-intensity> (Reference Tab, Table A.3).

#### **IV. Conclusion**

The undersigned commenters request Ecology strengthen the integrity of WA-GREET 4.0 by adopting the generic counterfactual approach in its final rulemaking, accounting for upstream and downstream emissions of operations that produce factory farm biogas, and also accounting for realistic fugitive emissions from factory farm biogas infrastructure. We appreciate the opportunity to provide feedback during this informal comment period on the proposed updates to the Clean Fuel Program rules.

Sincerely,

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Friends of the Earth

Jean Mendoza  
Friends of Toppenish Creek

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