

COMMENTS

OREGON'S CONCENTRATED ANIMAL FEEDING OPERATIONS: AIR QUALITY AS THE EPICENTER OF ENVIRONMENTAL JUSTICE ISSUES & REGULATORY SOLUTIONS

BY
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The expanding presence of the Confined Animal Feeding Operation (CAFO) in Oregon implicates several environmental justice issues—issues where the environmental harms of an industry disproportionately impact low-income Black and Indigenous communities and communities of color generally—including neighborhood pollution, workers' rights, water wars, global hunger, and climate crisis. This Comment argues that air emissions are the epicenter of these environmental justice issues, specifically in the form of local neighborhood pollution, farmworker workplace contamination, and greenhouse gas emissions that contribute to the global climate crisis. Accordingly, this Comment argues that air emissions are also the epicenter of regulatory solutions to remedy these environmental injustices. It argues that the most relevant

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pathway toward heightened checks on CAFO operations lies in air emissions regulation, under the federal Clean Air Act and Oregon state legislation. With the legislative changes advocated for in this Comment, new and existing CAFO operations would have to significantly adjust their practices to remain legally operative. However, CAFOs could also choose to adjust their practices if compliance with regulation proves to be too expensive, creating the need to de-classify themselves from categories subject to those regulations in the first place (such as major sources of pollution or even CAFOs at all). Ultimately, whichever method CAFO operators choose would likely have its own positive corresponding effects for environmental justice communities.

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I. INTRODUCTION

Large concentrated animal feeding operations (CAFOs) are lots or facilities where large threshold numbers of land animals (for example, more than 1,000 cattle, 10,000 pigs, or 125,000 chickens) are confined for over forty-five days each year.¹ Animal agribusiness consolidates operations into these crowded facilities to maximize output and profit.² However, the crowding creates environmental harms, which are disproportionately borne by vulnerable communities, predominantly

¹ 40 C.F.R. § 122.23 (2020).

² Christine Ball-Blakely, *CAFOs: Plaguing North Carolina Communities of Color*, 18 SUSTAINABLE DEV. L. & POL'Y, Fall 2017, at 4, 4.

comprised of low-income people of color.³ This Comment uses the term environmental justice (EJ) communities when referring to these populations. Oregon in particular has a growing number of large CAFOs, despite recent scandals involving poor regulation and catastrophic pollution in the state.⁴ The EJ implications of the rising CAFO presence in Oregon include neighborhood pollution, workers' rights, water wars, global hunger, and climate crisis.

This Comment argues that air emissions are the epicenter of both EJ issues and regulatory solutions. Accordingly, this Comment argues that the most relevant pathway toward heightened checks on CAFO operations lies in air emissions regulation under the federal Clean Air Act and Oregon state legislation. Part II unpacks the many EJ issues associated with CAFOs.⁵ Part III then touches on previous failed attempts to regulate the industry.⁶ Part IV delves into an air-emissions-based approach to CAFO regulation and the relevant federal and state regulatory structures at play.⁷ The Comment concludes with a projection of various EJ benefits that could result from the proposed approaches.⁸

II. THE ISSUES

CAFOs are often located near EJ communities, including both low-income⁹ and Black, Indigenous, and people of color (BIPOC) populations.¹⁰ For example, Oregon's two largest CAFOs are located in a county with more than double the state average Latinx population.¹¹ Neighborhood pollution is a serious EJ issue as emissions from the large quantities of livestock manure stored at CAFOs can contain unsafe quantities of ammonia, nitrous oxide, hydrogen sulfide, volatile organic

³ Kelly J. Donham et al., *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*, 115 ENV'T HEALTH PERSPECTIVES 317, 318 (2007).

⁴ See, e.g., Notice of Revocation of Individual Permit No. OR995129 at 34, Or. Dep't of Agric. (June 27, 2018) [hereinafter Notice of Revocation] (noting that the Lost Valley Farm "cannot or will not operate in compliance with the permit's terms").

⁵ See discussion *infra* Part II.

⁶ See discussion *infra* Part III.

⁷ See discussion *infra* Part IV.

⁸ See discussion *infra* Part V.

⁹ Donham et al., *supra* note 3.

¹⁰ Ball-Blakely, *supra* note 2, at 4–5.

¹¹ U.S. Census Bureau, *Census Reporter Profile Page for Oregon (2019)*, CENSUS REPORTER, <https://perma.cc/6VRP-NG64> (last visited June 5, 2021) (showing the state average Latinx population is 13%); U.S. Census Bureau, *Census Reporter Profile Page for Morrow County, OR (2019)*, CENSUS REPORTER, <https://perma.cc/R6DB-NVJU> (last visited June 5, 2021) (showing the county average Latinx population is 37%); see Barbara Bernstein, *CAFOs in Oregon*, KBOO (May 22, 2017), <https://perma.cc/P78W-GRYV> (highlighting Lost Valley and Threemile Canyon Farms as large CAFOs in Oregon); *Welcome to Boardman Oregon*, CITY OF BOARDMAN OREGON, <https://perma.cc/W42T-SZTV> (last visited June 5, 2021) (identifying the county Boardman is located within: Morrow).

compounds, and particulate matter.¹² Urine, animal hair, antibiotics, and hormones also release harmful compounds.¹³ These pollutants can cause respiratory problems, headaches, nausea, low blood oxygen, stomach and esophageal cancer, and infection, in addition to further impacts such as decreasing property values, which impact generational wealth and further entrench the poverty cycle.¹⁴ Oregon communities are often well aware of these threats, but the permitting agencies do not weigh their concerns equally with the interests of the CAFO industry. For example, during a public comment period in 2016, community members submitted thousands of comments opposing a new large CAFO, but the agency ultimately permitted the operation despite this public outcry.¹⁵

The laborers employed by animal feeding operations are also members of marginalized demographics, as they are often undocumented immigrants.¹⁶ CAFOs pay their workers decidedly low wages even though the workers face serious physical dangers as a result of the tiring work with long hours using sharp equipment for slaughter.¹⁷ CAFO workers also experience psychological trauma as a result of slaughtering animals at ever-quickenning paces.¹⁸ There are other inherent health hazards for CAFO workers, including chronic obstructive airways disease, interstitial lung disease, occupational asthma, acute and chronic bronchitis, and organic dust toxic syndrome.¹⁹ These trends are exacerbated as farms grow in size and density.²⁰ Data on workers' rights abuses specific to Oregon are sparse, although there are records of individual instances. For example, the Oregon Lost Valley CAFO initially received a permit even

¹² U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-08-1177T, TESTIMONY BEFORE THE SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS, COMMITTEE ON ENERGY AND COMMERCE, HOUSE OF REPRESENTATIVES, STATEMENT OF ANU K. MITTAL, DIRECTOR 1 (2008); see also J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 *ECOLOGICAL L.Q.* 263, 285–86 (2000) (discussing the volume of livestock waste produced, the types of water bodies polluted, and impact on local fish and animal species).

¹³ CARRIE HRIBAR, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACTS ON COMMUNITIES 2–3 (Mark Schultz ed., 2010); J. Nicholas Hoover, *Can't You Smell That Smell? Clean Air Act Fixes for Factory Farm Air Pollution*, 6 *J. ANIMAL L. & POL'Y* 1, 6 n.39 (2013).

¹⁴ HRIBAR, *supra* note 13, at 6–7.

¹⁵ OR. DEP'T AGRIC. & OR. DEP'T ENV'T QUALITY, CONFINED ANIMAL FEEDING OPERATION (CAFO) NPDES PROPOSED CAFO INDIVIDUAL PERMIT FOR LOST VALLEY FARM, GREG TEVELDE: RESPONSE TO PUBLIC COMMENTS (Nov. 16, 2020), <https://perma.cc/C4N3-J7VU>.

¹⁶ Michael S. Worrall, *Meatpacking Safety: Is OSHA Enforcement Adequate?*, 9 *DRAKE J. AGRIC. L.* 299, 306 (2004).

¹⁷ Jennifer Dillard, *A Slaughterhouse Nightmare: Psychological Harm Suffered by Slaughterhouse Employees and the Possibility of Redress Through Legal Reform*, 15 *GEO J. ON POVERTY L. & POL'Y* 391, 392–93 (2008).

¹⁸ *Id.* at 396.

¹⁹ HRIBAR, *supra* note 13, at 6–7.

²⁰ See, e.g., F.M. Mitloehner & M.S. Calvo, *Worker Health and Safety in Concentrated Animal Feeding Operations*, 14 *J. AGRIC. SAFETY & HEALTH* 163, 164, 168–69, 173, 178 (2008) (discussing health conditions and worker safety in within CAFOs).

though it failed to provide restroom facilities for its employees.²¹ Furthermore, Oregon employers are not required to pay overtime to CAFO workers and may also be exempt from paying minimum wage.²²

Another EJ concern is the impacts of CAFO operations' massive water use on Indigenous communities in Oregon. In 2020, the local ranching industry threatened the Klamath Tribe's water rights by seeking to restore irrigation operations in the basin even after a federal judge validated existing water-rights agreements.²³ The battle over water rights between the agriculture industry and Indigenous communities is another example of how CAFO facilities pose serious EJ threats to Oregon's population.

Lastly, EJ harm by the CAFO industry reaches across the globe. Half of the world's grain crops go toward feeding livestock, rather than directly to human beings, which wastes resources due to the land, fossil fuel, and water inefficiency of meat-heavy diets, such as those prevalent in the U.S., despite growing hunger crises across the world.²⁴ CAFOs also heavily contribute to climate change through emissions of the greenhouse gases (GHGs) carbon dioxide, nitrous oxide, and methane.²⁵ As climate change disproportionately harms EJ communities,²⁶ CAFOs' generation of GHGs also contributes to that harm. Despite Oregon's demonstrated interest in being a positive global actor, exemplified by Governor Kate Brown's Climate Executive Order,²⁷ Oregon has surprisingly increased deregulation of the CAFO industry.

III. FAILED LEGAL PATHWAYS

The U.S. government consistently creates statutory exclusions and economic subsidies to support agribusiness, a practice known as

²¹ *Stop Lost Valley Farm Mega-Dairy*, OR. LEAGUE CONSERVATION VOTERS (June 6, 2018), <https://perma.cc/2ED4-CRR5>.

²² *Minimum Wage and Overtime in Agriculture*, OR. BUREAU OF LAB. & INDUSTRIES, <https://perma.cc/WAE4-VGHW> (last visited June 6, 2021).

²³ Appellants' Opening Brief at 15, *Hawkins et al. v. Bernhardt et al.*, No. 20-5074, 2020 WL 4039041 (D.C. Cir. July 17, 2020) *aff'd*, *Hawkins v. Haaland*, 991 F.3d 216 (D.C. Cir. 2021).

²⁴ *An HSUS Report: The Impact of Industrialized Animal Agriculture on World Hunger*, HUMANE SOC'Y OF THE U.S. (Oct. 26, 2009), <https://perma.cc/8GD8-EDA6>.

²⁵ NAT'L RES. COUNCIL, AIR EMISSIONS FROM ANIMAL FEEDING OPERATIONS: CURRENT KNOWLEDGE, FUTURE NEEDS 21 (2003).

²⁶ *See, e.g., Environmental & Climate Justice*, NAACP (last visited Mar. 30, 2021), <https://perma.cc/ZC98-6XWD> ("Environmental injustice, including the proliferation of climate change, has a disproportionate impact on communities of color and low-income communities.").

²⁷ OFFICE OF THE GOVERNOR, STATE OF OR., EXEC ORDER NO. 20-04., DIRECTING STATE AGENCIES TO TAKE ACTIONS TO REDUCE AND REGULATE GREENHOUSE GAS EMISSIONS (2020).

“agricultural exceptionalism.”²⁸ Legal advocates acknowledge the absurdity of these free passes as they relate to the CAFO industry: “It is past time for [the federal government] to start treating factory farming as the polluting industry it is, and bring these facilities into the 21st Century of pollution control regulation.”²⁹

One recent example is that the 2018 Fair Agricultural Reporting Method (FARM) Act³⁰ exempts CAFOs from reporting requirements under the Comprehensive Environmental Response, Compensation, and Liability Act³¹ and the Emergency Planning and Community Right-to-Know Act.³² These latter two acts were established to require emitters of hazardous pollutants (for example, CAFOs emitting ammonia and hydrogen sulfide) to report significant emissions to national, state, and local response centers, making this data publicly available.³³ This information is instrumental to community and environmental advocacy group efforts, allowing for crucial insights into polluters’ activities to bolster calls for accountability and regulation (and creating a deterrent as a result of this threat).³⁴ Oregon specifically feels the effects of this deregulation.³⁵ Without these statutes, the state rates “low” for the transparency in CAFO data, including low transparency of manure storage, type of animal, and owner information, which could contribute to the chronic lack of support for CAFO regulation.³⁶

Another systematic support mechanism of the agriculture industry is state Right-To-Farm (RTF) laws.³⁷ Oregon’s RTF law affords significant protections to CAFOs,³⁸ shielding operators (and other operations, including meat processing facilities) from nuisance and trespass tort law

²⁸ Katrina A. Tomas, Note, *Manure Management for Climate Change Mitigation: Regulating CAFO Greenhouse Gas Emissions Under the Clean Air Act*, 73 U. MIAMI L. REV. 531, 547 (2019).

²⁹ Tarah Heinzen, Essay, *Stopping the Campaign to Deregulate Factory Farm Air Pollution*, 17 N.Y.U. ENV’T L.J. 1482, 1526 (2013).

³⁰ Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, § 132 Stat. 348, 1147–48 (2018).

³¹ Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9603 (2019).

³² Emergency Planning and Community Right-to-Know Act, 42 U.S.C. § 11004 (2019); Madhavi Kulkarni, *Out of Sight, but Not Out of Mind: Reevaluating the Role of Federalism in Adequately Regulating Concentrated Animal Feeding Operations*, 44 WM. & MARY ENV’T L. & POL’Y REV. 285, 289 (2019); *CERCLA and EPCRA Reporting Requirements for Air Releases of Hazardous Substances from Animal Waste at Farms*, U.S. ENV’T PROT. AGENCY (last visited Mar. 31, 2021), <https://perma.cc/9R2C-QRUY>.

³³ Heinzen, *supra* note 29, at 1487–88.

³⁴ *Id.* at 1501.

³⁵ D. Lee Miller & Gregory Muren, *CAFOS: What We Don’t Know Is Hurting Us*, NAT. RES. DEF. COUNCIL 12 (Sept. 2019), <https://perma.cc/96X5-8KEJ>.

³⁶ *Id.* at 15.

³⁷ See, e.g., *Land Use and Right to Farm*, OR. DEPT’ AGRIC., <https://perma.cc/Y2MR-4KM5> (last visited May 5, 2021) (indicating that Oregon’s Right-to-Farm law is part of a policy to protect growers and ranchers from “decisions based on customary noises, smells, dust, or other nuisances associated with farming”).

³⁸ *Id.*

liability for all practices that are or may become accepted as “reasonable and prudent,” which is undefined.³⁹ The immunity encompasses all actions or claims based on physical contaminants such as noise, odors, dust, and mist from irrigation.⁴⁰ Although Oregon’s RTF law applies to most sectors of the agricultural industry, the problems may be most severe with respect to CAFOs.⁴¹ As slaughterhouses and CAFOs continue appearing in Oregon communities, neighbors cannot bring claims against the facilities for trespass caused by the physical intrusions commonly associated with feeding operations, such as flies, pesticides, contaminated runoff, or animal wastes.⁴² Due to these frustrations, non-farmers may someday challenge Oregon’s RTF law. However, RTF laws cannot protect the industry from environmental regulations.⁴³ Therefore, environmental regulations “may be the public’s only avenue of protection against polluting agricultural operations.”⁴⁴

Currently, the sole federal CAFO environmental regulation was promulgated by the U.S. Environmental Protection Agency (EPA) under the Clean Water Act (CWA)⁴⁵ and prohibits point sources of pollution from discharging into surface waters without a National Pollutant Discharge Elimination System (NPDES) permit.⁴⁶ The law still enables facilities to pollute waterways and does nothing to regulate discharges into groundwater, but it provides important parameters and limits on discharges.⁴⁷ The EPA defines a CAFO as a point source and therefore requires the permitting program to be applied to its operations.⁴⁸ However, only a fraction of all large CAFOs currently have CWA permits because NPDES permits are not required until a point source is already discharging pollutants.⁴⁹ As state governments administer these permits, several states, including Oregon, require NPDES (or equivalent state) permits for all CAFOs, including those that have not been caught discharging pollutants.⁵⁰ The Oregon Department of Environmental

³⁹ Lisa N. Thomas, *Forgiving Nuisance and Trespass: Is Oregon’s Right-to-Farm Law Constitutional?*, 16 J. ENV’T L. & LITIG. 445, 448–49 (2001).

⁴⁰ *Id.* at 449.

⁴¹ *Id.* at 464 n.126.

⁴² *Id.* at 464.

⁴³ Reagan M. Marble, *The Last Frontier: Regulating Factory Farms*, 43 TEX. ENV’T L.J. 175, 182 (2013).

⁴⁴ *Id.*

⁴⁵ Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 82-500, 86 Stat. 816 (commonly referred to as the Clean Water Act); *Summary of the Clean Water Act*, U.S. ENV’T PROT. AGENCY (Sept. 9, 2020), <https://perma.cc/C9ZQ-BMWD>.

⁴⁶ 33 U.S.C. §§ 1311(a), 1342(a) (2018).

⁴⁷ *See id.* §§ 1311(a), 1342(a), 1362(12) (prohibiting the discharge of pollutants into navigable waters unless in accordance with a permit provision).

⁴⁸ *Animal Feeding Operations (AFOs)*, U.S. ENV’T PROT. AGENCY, <https://perma.cc/PE25-YCXX> (last updated Aug. 3, 2020).

⁴⁹ U.S. ENV’T PROT. AGENCY, NPDES COMPLIANCE INSPECTION MANUAL 341 (2017).

⁵⁰ *Why Are CAFOs Bad?*, SIERRA CLUB, <https://perma.cc/E8D8-J9G4> (last visited May 5, 2020); OR. DEP’T. AGRIC., CONFINED ANIMAL FEEDING OPERATION (CAFO) PROGRAM 2019 ANNUAL REPORT, 5 (2019), <https://perma.cc/W23Z-AL9Y>.

Quality (DEQ) delegated responsibility for administering CAFO permits to the Department of Agriculture (ODA) through a memorandum of understanding.⁵¹ This transfer was never approved by the EPA and the fact that the ODA is now the enforcement body for the CWA is arguably a conflict of interest.⁵² Regardless, ODA is legally obligated to consider CAFOs' impacts on EJ communities when permitting new facilities.⁵³ Exerting pressure on ODA to consider these duties when permitting CAFOs is one avenue to establish more robust controls.

It is clear that the current legal system, both at federal and state levels, is not operating to effectively shield EJ communities from CAFO harm. Agricultural exceptionalism continues to expand and entrench deeper into policies and standards.⁵⁴ But why? Part of the answer might lie in the agribusiness industry's influence. In 2018 alone, "the dairy industry spent close to \$7.5 million, the livestock industry close to \$4 million, and the eggs and poultry industry close to \$2 million" on lobbying efforts nationwide.⁵⁵ This might explain why the \$867 billion FARM Act, signed into law in 2018 by President Trump, allocated the greatest federal subsidies to the largest operations, many of which operate multiple large CAFOs.⁵⁶ Oregon is not immune from these influences either, as it is the top state in the country when it comes to corporate giving.⁵⁷ Lobbyists exert pressure on state government in many ways specific to the CAFO industry as well. For example, Oregon's dairy industry alone has donated over \$1 million to state lawmakers in the past decade.⁵⁸ Imposing state limits on corporate campaign donors might limit this external pressure, allowing for more EJ considerations to have a fighting chance in the legislature. Regardless, establishing checks on this industry will be an uphill battle. Strategic and creative legal approaches to checking the industry are more important now than ever.

IV. AN EJ-CENTERED APPROACH: AIR EMISSIONS REGULATION

As noted in Part II, CAFO emissions raise serious EJ concerns including local pollution of neighborhood and farmworkers' air, as well as

⁵¹ KATHY HESSLER ET. AL., REVISED REPORT ON ENFORCEMENT OF THE CLEAN WATER ACT AS IT RELATES TO CAFOS BY OREGON'S DEPARTMENT OF AGRICULTURE 3–4 (2013).

⁵² *Id.* at 4–5.

⁵³ OR. REV. STAT. §182.545(1) (2020).

⁵⁴ See Sarah O. Rodman et al., *Agricultural Exceptionalism at the State Level: Characterization of Wage and Hour Laws for U.S. Farmworkers*, J. AGRIC., FOOD SYS., & CMTY. DEV., WINTER 2015-2016, at 89, 95, 102–04 (explaining agricultural exceptionalism at the federal level and analyzing agricultural exceptionalism at the state level).

⁵⁵ Kulkarni, *supra* note 32, at 295.

⁵⁶ *Id.*

⁵⁷ Rob Davis, *Polluted by Money*, THE OREGONIAN (Feb. 22, 2019), <https://perma.cc/9TKE-QQUC>.

⁵⁸ *Dairy Contributions to Candidates and Committees in Elections in Oregon*, FOLLOWTHEMONEY, <https://perma.cc/EG32-DMX3> (last visited May 5, 2021).

emitting pollutants that contribute to climate change.⁵⁹ CAFOs produce air pollutants throughout the facility, including barns, feedlots, manure storage, and the animals themselves, although decomposing animal manure is the primary cause.⁶⁰ These hazards are widespread in Oregon, especially as the agribusiness industry continues to set up new and ever-larger CAFOs within the state.⁶¹ One CAFO in eastern Oregon is already notable on a national scale for its contributions to air quality hazards; Threemile Canyon Farms has 52,300 cows who produce copious pollutants, including up to 15,500 pounds of ammonia every day and 505 tons of volatile organic compounds every year.⁶² Therefore, both federal and state air emissions regulation has been an increasingly relevant and popular battlefield for CAFO EJ efforts.⁶³ Although there are currently no success stories for CAFO air emissions regulation to date, there are key areas and unexplored pathways in this arena.

A. *The Federal Clean Air Act*

The Clean Air Act (CAA),⁶⁴ implemented and enforced by the EPA, is the U.S. government's primary mechanism of regulating air pollution. Congress drafted the CAA in 1970 to rein in pollution from motor vehicles and stationary sources (i.e., power plants, industrial plants, and other facilities).⁶⁵ CAFO air emissions, clearly stationary sources, could potentially be regulated under several relevant provisions of the CAA.⁶⁶ These provisions are actualized through State Implementation Plans (SIPs) and generally, if a facility is not in compliance with SIPs, citizens or regulators can file a CAA enforcement action.⁶⁷ Before delving into the analysis of the CAA specifics, it is important to establish that the (admittedly convoluted) landscape of existing pathways for regulation under the CAA is currently impeded by a wide-reaching loophole, which itself is quite complex.

⁵⁹ See *supra* Part II.

⁶⁰ Hoover, *supra* note 13, at 6.

⁶¹ See, e.g., Sierra Dawn McClain, *Chicken Producers to Build Large-Scale Operations in Oregon*, CAPITAL PRESS (Mar. 30, 2021) <https://perma.cc/7WGF-7XPJ> (discussing newly proposed large-scale CAFO operations in Oregon).

⁶² Sarah C. Wilson, Comment, *Hogwash! Why Industrial Animal Agriculture is Not Beyond the Scope of Clean Air Act Regulation*, 24 PACE ENV'T L. REV. 439, 456, 464 (2007).

⁶³ *Food and Environmental Justice Groups Petition EPA to Regulate Dairy and Hog Methane*, FOOD & POWER (Apr. 15, 2021), <https://perma.cc/8TGF-MBHJ>.

⁶⁴ Clean Air Act, 42 U.S.C. § 7401 (2018).

⁶⁵ *Id.* § 7401(a)(2).

⁶⁶ Danielle Elefritz, Comment, *"From Frisbees to Flatulence": Regulating Greenhouse Gases from Concentrated Animal Feeding Operations Under the Clean Air Act*, 48 ENV'T L. 891, 899–900 (2018).

⁶⁷ 42 U.S.C. §§ 7410, 7413, 7604.

1. *The Loophole: EPA & CAFOs' Air Compliance Agreement*

The EPA only brought a few suits against individual CAFO operations that violated sections of the CAA before establishing the loophole.⁶⁸ In 2005, due to their alleged need to better understand CAFO emissions and how they should be regulated under the CAA, the EPA launched a nationwide emissions study called the National Air Emissions Monitoring Study (NAEMS).⁶⁹ The EPA determined that this study necessitated a contract with CAFO operators that it termed the Air Compliance Agreement (Agreement).⁷⁰

The Agreement, which began in 2006, allowed the EPA to monitor air emissions (volatile organic compounds, hydrogen sulfide, particulate matter, and ammonia) from some CAFOs in exchange for granting all participating CAFOs immunity from the CAA and other federal environmental statutes.⁷¹ Less than two dozen CAFOs were ever monitored, while more than 99.8% of the nation's CAFOs (approximately 14,000) received immunity without any engagement whatsoever.⁷² Furthermore, although the Agreement did not prohibit CAA citizen suits outright, participating CAFOs were advised that they would effectively be shielded from these suits as well.⁷³ Therefore, it is widely agreed that courts were hesitant to entertain a citizen suit against a participating CAFO.⁷⁴ Thus, the Agreement sufficiently deterred citizens from making claims due to the severe cost of litigation unlikely to prevail.⁷⁵ Ultimately, even the CAFOs that were not included in the Agreement were made collaterally immune, as the EPA included in the Agreement that, due to a lack of data, it could not establish emission thresholds for CAFOs, "leaving the industry without a standard to even potentially violate."⁷⁶

Redundantly, the EPA already had the authority to monitor CAFO operations as emitters under the CAA without the Agreement.⁷⁷ Perhaps the EPA's decision to pursue such unnecessary deregulation might be explained by the fact that the drafters of the Agreement were largely

⁶⁸ Wilson, *supra* note 62, at 466.

⁶⁹ See U.S. ENV'T PROT. AGENCY, OFFICE OF INSPECTOR GENERAL, IMPROVING AIR QUALITY: ELEVEN YEARS AFTER AGREEMENT, EPA HAS NOT DEVELOPED RELIABLE EMISSION ESTIMATION METHODS TO DETERMINE WHETHER ANIMAL FEEDING OPERATIONS COMPLY WITH CLEAN AIR ACT AND OTHER STATUTES, 1, 4-6 (Sep. 2017) [hereinafter U.S. EPA, IMPROVING AIR QUALITY] ("In the late 1990s, the EPA recognized that it did not have sufficient [C]AFO air emissions data to develop reliable emission estimating methodologies (EEMs) for determining whether individual [C]AFOs are subject to CAA permit requirements.").

⁷⁰ Wilson, *supra* note 62, at 466.

⁷¹ *Id.* at 467, 469.

⁷² See Heinzen, *supra* note 29, at 1507 (noting that only 21 out of more than 14,000 farms are included in the emissions monitoring study).

⁷³ *Id.*

⁷⁴ *Id.* at 1510.

⁷⁵ *Id.*

⁷⁶ Tomas, *supra* note 28, at 549; Heinzen, *supra* note 29, at 1507.

⁷⁷ Wilson, *supra* note 62, at 470.

agribusiness representatives.⁷⁸ The NAEMS was finally completed in 2010 and theoretically informs CAFO emissions estimation methodologies (EEMs) to determine whether or not facilities comply with CAA standards.⁷⁹ However, the EPA has yet to establish follow-up work plans or deadlines to finalize these EEMs.⁸⁰ Until the EPA's EEMs are completed, the Agreement and its correlated immunities for CAFOs remain in effect.⁸¹

2. Immediate & Future Application of CAA to CAFOs

Although the Agreement severely compromised the CAA's utility, it only granted CAFOs immunity from civil violations relating to the emission of the specific pollutants that EPA was monitoring at that time (again, volatile organic compounds, hydrogen sulfide, particulate matter, and ammonia).⁸² The EPA even went so far as to clearly state that the releases and covenant not to sue would not extend to emissions of gases beyond the few explicitly named.⁸³ This may provide a significant opportunity for CAA regulation of GHG emissions, which were not included in those originally monitored.

Recent precedent has established EPA's authority to regulate GHG emissions under the CAA, as GHGs can also cause or contribute to air pollution that may endanger public health or welfare.⁸⁴ CAFOs emit some of the most potent and harmful GHGs, including methane and nitrous oxide (the two most abundant non-carbon dioxide GHGs), and yet these emissions are entirely unregulated under the CAA.⁸⁵ This is an opportunity to vastly impact climate change through their regulation.

The CAA could be used to regulate CAFO air emissions in two ways: First, the two largest GHGs that CAFOs emit, methane and nitrous oxide, could be directly and immediately regulated by listing the gases as criteria pollutants. Second, after the Agreement immunities end, the CAA could be used to more comprehensively regulate air emissions for pollutants currently regulated. The following is a breakdown of the two pathways.

⁷⁸ *Id.* at 472.

⁷⁹ U.S. EPA, IMPROVING AIR QUALITY, *supra* note 69, at 4–5.

⁸⁰ *Id.* at 10.

⁸¹ *Id.* at 6.

⁸² John Verheul, *Methane As A Greenhouse Gas: Why the EPA Should Regulate Emissions from Animal Feeding Operations and Concentrated Animal Feeding Operations Under the Clean Air Act*, 51 NAT. RES. J. 163, 181 (2011).

⁸³ *Id.*

⁸⁴ *Massachusetts v. U.S. Env't Prot. Agency*, 549 U.S. 497, 532 (2007).

⁸⁵ *See* Tomas, *supra* note 28, at 535 (contrasting EPA regulation of carbon-emission sources like coal plants with the non-regulation of methane produced by CAFOs, “[t]he EPA needs to similarly hold the animal agriculture sector accountable by enforcing the existing CAA framework in order to ensure a decrease in methane and nitrous oxide emissions”).

3. National Ambient Air Quality Standards

The CAA's primary regulatory instrument is called the National Ambient Air Quality Standards (NAAQS), which controls common, widespread pollutants.⁸⁶ These standards establish the maximum allowable concentration of six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.⁸⁷ The CAA provides that the EPA may conduct "Endangerment Findings" and list additional criteria pollutants over time, in accordance with increasing scientific understanding.⁸⁸ Overall, the EPA reviews air quality data and determines whether or not areas across the U.S. comply with the standards.⁸⁹ It designates each area as a "nonattainment" or "attainment" area accordingly.⁹⁰ Air quality planning and control requirements differ for each designation, but most importantly, SIPs must provide for nonattainment areas' attainment within a set timeframe.⁹¹

Seeking regulation of CAFO GHGs under the initial NAAQS provision would require listing the two strongest CAFO GHG pollutants (methane and nitrous oxide) as criteria pollutants. However, regulating CAFO GHGs under the NAAQS provision may not be the most effective way to regulate CAFO GHG emissions under the CAA.⁹² The NAAQS provision assesses air emissions with region-based methods, a notoriously difficult way to measure GHGs because emissions do not remain stagnant in the regions where they are emitted.⁹³ Overall, this would be a tough fight for a relatively small reward.

In terms of post-Agreement immunities, as there are currently NAAQS for a variety of pollutants, including particulate matter, ammonia, and hydrogen sulfide, CAFOs could be subject to SIP requirements accordingly.⁹⁴ These pollutants are currently tied up in the Agreement immunities, but after the conclusion of the EPA's EEM work, these will be fair game again, opening up a large swath of regulation.⁹⁵

⁸⁶ Elefritz, *supra* note 66, at 899.

⁸⁷ Kulkarni, *supra* note 32, at 290.

⁸⁸ Elefritz, *supra* note 66, at 906; EPA's *Endangerment Finding: The Legal and Scientific Foundation for Climate Action*, NAT. RES. DEF. COUNCIL (May 2017), <https://perma.cc/ZJE4-ZNQJ>.

⁸⁹ U.S. ENV'T PROT. AGENCY, *THE CLEAN AIR ACT IN A NUTSHELL: HOW IT WORKS 3* (March 22, 2013), <https://perma.cc/Z55W-76RV> [hereinafter, U.S. EPA, *THE CLEAN AIR ACT IN A NUTSHELL*].

⁹⁰ *Id.* at 4.

⁹¹ *Id.* at 5.

⁹² Tomas, *supra* note 28, at 551–52, 562, 566.

⁹³ *Id.* at 552–53.

⁹⁴ *Id.* at 553; *NAAQS Table*, U.S. ENV'T PROT. AGENCY, <https://perma.cc/F2PD-9JLD> (last updated Feb. 10, 2021).

⁹⁵ See *supra* notes 68–76 and accompanying text (describing the background of the Agreement).

4. *New Source Review: Nonattainment New Source Review & Prevention of Significant Deterioration*

The CAA New Source Review (NSR) applies to stationary sources such as CAFOs.⁹⁶ NSR mandates that sources seeking to build or modify are subject to one of two permitting programs.⁹⁷ These programs are applied based on an areas' current compliance with the NAAQs: (1) Nonattainment New Source Review (NNSR) for areas not in attainment or (2) Prevention of Significant Deterioration (PSD) for areas in attainment.⁹⁸ The NNSR permit requires new sources to comply with certain high industry standards.⁹⁹ NNSR permits also mandate that no new plants are built unless the plant's emissions are offset by existing nearby facilities (companies may choose to do so in a variety of ways).¹⁰⁰ The PSD permit applies only to stationary sources that emit regulated pollutants above set levels (also called "major sources").¹⁰¹ For these sources, both the air pollutant that triggers the "major" threshold and any other significant air pollutants emitted are subject to PSD regulatory controls.¹⁰² Essentially, major sources must obtain a PSD permit before beginning construction of a new facility or modification of an existing facility that results in a significant emissions increase, requiring that the sources be designed to comply with certain high industry standards.¹⁰³

The NSR may apply to GHG emissions regulation. The NNSR permit only regulates criteria pollutants and GHGs are not criteria pollutants.¹⁰⁴ However, the PSD permit applies to any regulated air pollutant (meaning pollutants subject to any provision in the CAA, including non-criteria pollutants) and therefore remains a promising pathway.¹⁰⁵ Regulating CAFO GHGs under the PSD program would apply high industry standards to the construction or modification of major sources, which would impact air emissions.

When the Agreement terminates, CAFO immunity from civil violations relating to the emissions EPA monitored will end, and the NAAQS for pollutants such as particulate matter, carbon monoxide, and hydrogen sulfide can be used to regulate CAFO emissions.¹⁰⁶ Therefore, CAFOS, as stationary sources, could be subject to either of the NSR programs under SIPs, which could significantly reduce air emissions.¹⁰⁷ EPA and state agencies are generally reluctant to impose construction or

⁹⁶ Elefritz, *supra* note 66, at 899–900.

⁹⁷ *Id.* at 902–03.

⁹⁸ *Id.*

⁹⁹ U.S. EPA, THE CLEAN AIR ACT IN A NUTSHELL, *supra* note 89, at 5.

¹⁰⁰ *Id.* at 6.

¹⁰¹ Elefritz, *supra* note 66, at 903.

¹⁰² *Id.*

¹⁰³ U.S. EPA, THE CLEAN AIR ACT IN A NUTSHELL, *supra* note 89, at 9.

¹⁰⁴ Elefritz, *supra* note 66, at 903.

¹⁰⁵ *Id.* at 902.

¹⁰⁶ NAAQS Table, *supra* note 94.

¹⁰⁷ Elefritz, *supra* note 66, at 899–900.

operation permits on CAFOs, but if advocates push for NSR application to CAFO GHGs or other air emissions, it could provide for significant regulation.¹⁰⁸

5. *National Emissions Standards for Hazardous Air Pollutants & Hazardous Air Pollutants*

Although the EPA may list additional criteria pollutants over time, it has been slow to exercise this power.¹⁰⁹ But in the 1990 CAA Amendments,¹¹⁰ Congress established a new program to provide regulation for additional pollutants as needed.¹¹¹ This program is called the National Emissions Standards for Hazardous Air Pollutants (NESHAP), leading to another relevant component of the CAA: the listing of Hazardous Air Pollutants (HAPs).¹¹² HAPs are especially localized and toxic pollutants, and the EPA must issue “maximum achievable control technology” (MACT) emissions standards for all new and existing major industrial sources.¹¹³ EPA requires that existing polluters of these substances meet the emissions levels of the best-performing 12% of the industry, and new facilities to meet the level achieved by the best-controlled facility.¹¹⁴

GHG regulation is probably irrelevant under this provision, as GHGs would likely not meet the definition of the term “hazardous.”¹¹⁵ However, there are strong arguments that the EPA should list hydrogen sulfide and ammonia, common CAFO air emissions that are currently tied up in the Agreement immunities, as HAPs.¹¹⁶ If the EPA were to list these chemicals as HAPs, thorough corresponding regulation would likely follow.¹¹⁷ This has not yet happened, but after the immunities are lifted, it would be a strong approach.

6. *New Source Performance Standards*

Lastly, under the CAA New Source Performance Standards (NSPS),¹¹⁸ the EPA establishes specific categories of stationary sources; then, as new sources are created, they are subject to the category’s

¹⁰⁸ Tomas, *supra* note 28, at 547–48, 566.

¹⁰⁹ Elefritz, *supra* note 66, at 900–01.

¹¹⁰ Clean Air Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990) (codified as amended at 42 U.S.C. §§ 7401–7642).

¹¹¹ *See generally* U.S. EPA, THE CLEAN AIR ACT IN A NUTSHELL, *supra* note 89, at 1, 12 (discussing the key provisions of the Act, including those aimed at “hazardous” and “toxic” air pollutants).

¹¹² 42 U.S.C. § 7412 (2018).

¹¹³ 40 C.F.R. § 63.55 (2020); U.S. EPA, THE CLEAN AIR ACT IN A NUTSHELL, *supra* note 89, at 12.

¹¹⁴ Hoover, *supra* note 13, at 18–19.

¹¹⁵ *Id.* at 10.

¹¹⁶ *Id.* at 16.

¹¹⁷ *Id.* at 18–19.

¹¹⁸ *See generally* 40 C.F.R. § 60 (2017).

performance standards.¹¹⁹ This is unlike the NAAQS, NSR, and NESHAP approaches because the NSPS approach does not deal with single pollutants, but rather categories of polluters.

The NSPS approach is likely the most promising for both GHG regulations and post-Agreement immunities emissions regulations overall. The EPA has yet to list CAFOs as a source category, but if it did, it could regulate a large variety of their air emissions (including GHGs methane and nitrous oxide, which are not subject to Agreement immunities, and particulate matter, ammonia, and hydrogen sulfide, which are).¹²⁰ Moreover, this listing would allow all CAFOs across the country to be uniformly regulated (i.e. regulations would not vary between attainment and nonattainment areas).¹²¹ This approach also allows the EPA to “distinguish among classes, types, and sizes within categories” when establishing standards, meaning that it could target specific types and sizes of CAFOs with higher standards.¹²² Importantly, when setting the source category standard, the EPA can consider “nonair quality health and environmental impact[s],” which could certainly apply to CAFOs.¹²³ This seriously implicates a variety of CAFO EJ concerns, and may even provide for specific workplace protections and regulations.¹²⁴ The EPA has yet to establish NSPS standards for CAFOs and will predictably be resistant to doing so, but it would be a comprehensive approach.

Overall, while the EPA finalizes the EEMs, and therefore the Agreement immunities remain intact, there are few options for regulating GHG emissions. However, the real change will come once EPA releases the EEMs, and a flood of CAA regulations can apply to all of the air pollutants these facilities produce. It is a waiting game, as exemplified by a recent case brought by the Humane Society of the U.S. and other advocates.¹²⁵ The advocates’ petition asked the court to require EPA to take many of these routes to regulation under the CAA.¹²⁶ The EPA ultimately denied that petition, in part relying on the fact that the EEM process is not yet complete.¹²⁷ It is only a matter of time before the EPA finalizes the EEMs, opening the door to robust accountability for the industry under the CAA.

¹¹⁹ Karl J. Worsham, “*All I Do Is Win*”: *The No-Lose Strategy of CAFO Regulation Under the CAA*, 12 J. FOOD L. & POL’Y 83, 100 (2016).

¹²⁰ *Id.* at 106–07.

¹²¹ *Id.* at 100.

¹²² *Id.* (citing 42 U.S.C. § 7411(b)(2) (2015)).

¹²³ *Id.* (citing 42 U.S.C. § 7411(a)(1) (2015)).

¹²⁴ See Tomas, *supra* note 28, at 537 (“Additionally, because of large scale productions, rural communities and low-income communities of color disproportionately suffer and are forced to deal directly with catastrophic air and water pollution.”).

¹²⁵ Complaint for Declaratory and Injunctive Relief, Humane Soc’y of the U.S. v. Pruitt, No. 1:17-cv-01719-CRC (D.D.C. Aug. 23, 2017).

¹²⁶ *Id.* at 2.

¹²⁷ See Tomas, *supra* note 28, at 562.

B. Oregon State Air Pollution Laws

Federal regulation of CAFO air emissions, specifically under the CAA, could provide critical benefits in terms of uniformity and widespread impact, but large-scale change is slow. In the meantime, statewide regulation in Oregon may be a more realistic opportunity. Generally speaking, state programs (e.g. laws and regulations) may be designed to provide adequate regulation while awaiting a more comprehensive federal approach, namely in the form of Permits by Rule, Consolidated Air Quality Permits, Emission Limitations, Pre-Operational Requirements, Pollution Prevention Plans and Operational Requirements, Local Government Participation, or Research Programs.¹²⁸

Of course, neither the CAA, generally, nor the Agreement, restricts a state's ability to adopt standards or requirements that are more stringent (at least for stationary sources).¹²⁹ However, Oregon's air pollution laws also expressly shield agriculture from regulation.¹³⁰ As a result, the head of DEQ's air quality division admitted that "[the agency] do[es] n[ot] have the tools [they] normally have to address [CAFO pollution]."¹³¹ Despite this fact, there have been key accomplishments. Oregon has already begun to take the lead in state regulation of CAFOs by 1) requiring CAFO operators to identify sources of odors and submit an odor management or control plan, and 2) stipulating that "[n]ew [CAFO]s should not be located where prevailing winds are likely to carry odors into residential or recreational areas."¹³² The following Part discusses the other main pathway that currently exists for Oregon state regulation of CAFOs.

In 2007, the Oregon State Legislature passed a bill to address air emissions from dairy CAFOs.¹³³ This bill, S.B. 235, created the Task Force on Dairy Air Quality (Task Force) to study emissions from dairy CAFOs, evaluate how to reduce emissions, and present findings and recommendations to ODA and DEQ.¹³⁴ The Task Force's Final Report was published in 2008 and explicitly called for ODA and DEQ to create an Oregon Dairy Air Emissions Program (ODAEP) to conduct further research on dairy CAFO air emissions and create interim regulatory

¹²⁸ See generally Jody M. Endres & Margaret Rosso Grossman, *Air Emissions from Animal Feeding Operations: Can State Rules Help?*, 13 PENN ST. ENV'T L. REV. 1, 6 (2004) (discussing the different schemes among several states to regulate CAFOs).

¹²⁹ U.S. EPA, THE CLEAN AIR ACT IN A NUTSHELL, *supra* note 89, at 21.

¹³⁰ OR. REV. STAT. § 468A.020 (2020).

¹³¹ Wilson, *supra* note 62, at 465 (citing Micheal Milstein, *Tracking Acid in Gorge*, OREGONIAN, July 29, 2005, at A1).

¹³² Confined Animal Feeding or Holding Operations, OR. ADMIN. R. 340-051-0075(2) (2021).

¹³³ S.B. 235, 74th Leg., Reg. Sess. (Or. 2007).

¹³⁴ *Id.*

measures for air emissions.¹³⁵ Over a decade has passed and the legislature has yet to fund the Task Force's recommended ODAEP or to adopt air pollution regulatory measures regarding CAFOs.

Tired of waiting for the state to act, advocates introduced S.B. 197 during the 2017 legislative session.¹³⁶ The bill would have required ODA and DEQ to adopt rulemaking to establish the ODAEP and regulate air emissions from dairy CAFOs based on the original recommendations from the Task Force's Final Report.¹³⁷ However, this bill failed in the legislature. In 2019, advocates introduced two more bills that were also unsuccessful. The first, S.B. 103, provided for similar demands as S.B. 197 but also demanded that ODA and DEQ instate a moratorium on new industrial dairy CAFOs.¹³⁸ The second, S.B. 104, simply would have allowed local governments to adopt human health and safety ordinances restricting or prohibiting air and water emissions by these facilities.¹³⁹ As these previous failed attempts demonstrate, holding ODA and DEQ accountable to the Task Force's Final Report will not be easy. Although attempts have been unsuccessful thus far, they carved out a conversation and space for new initiatives. Oregon is now fertile ground for air emissions regulation of CAFOs, and advocates have a clear tool in the Task Force's Final Report to make it happen.

Because there are advantages and drawbacks to federal versus state regulations of CAFO air emissions, an approach rooted in federalism might be crucial.¹⁴⁰ In other words, both federal and state regulation may be needed to address CAFO air pollution. Having discussed available pathways, this Comment now turns to the potential impact these different approaches could have on EJ communities.

C. Potential Impact of Air Emissions Regulation on EJ Issues

If the EPA finalizes the CAA EEMs, if advocates successfully push for CAA GHG regulation in the interim, or if Oregon legislation promulgates air emissions regulations under state law, new and existing CAFO operations will have to significantly adjust their practices to comply with new regulations. However, CAFOs could also choose to adjust their practices if compliance with regulation proves to be too expensive, creating the need to de-classify themselves from categories subject to those regulations in the first place (such as major sources of pollution or even CAFOs at all). Ultimately, whichever method CAFO

¹³⁵ OR. DAIRY AIR QUALITY TASK FORCE, FINAL REPORT TO DEP'T OF ENV'T QUALITY & DEP'T OF AGRIC. 1, 9 (July 1, 2008).

¹³⁶ S.B. 197, 79th Leg., Reg. Sess. (Or. 2017).

¹³⁷ *Id.*

¹³⁸ S.B. 103, 80th Leg., Reg. Sess. (Or. 2019).

¹³⁹ S.B. 104, 80th Leg., Reg. Sess. (Or. 2019).

¹⁴⁰ *See, e.g., Kulkarni, supra note 32, at 288, 299* (explaining the benefits and downfalls of federal and state regulation of CAFOs).

operators choose will have its own positive corresponding effects for EJ communities.

One possibility is that CAFO operators would purchase anaerobic methane digesters. These digesters capture and convert methane from CAFO manure into biogas, which is then used as an energy source for the CAFO itself or sold and transferred offsite.¹⁴¹ Although digesters would reduce methane emissions,¹⁴² there are serious limitations. First, while digesters provide a relatively simple approach for reducing CAFO methane emissions, these systems are expensive (up to \$2 million each) and are thus only economically realistic options for the largest CAFOs.¹⁴³ This further incentivizes the consolidation of livestock operations into increasingly large CAFOs that can afford these structures, facilitating greater concentration of livestock and their manure in the process.¹⁴⁴ Another problem with this approach is that the digesters do not capture and utilize 100% of the methane emissions from manure storage and do nothing to mitigate emissions from enteric fermentation (physical expulsion of air emissions by the animals themselves), which constitutes the majority of CAFOs' methane emissions.¹⁴⁵ Lastly, the digesters do not mitigate non-methane CAFO air pollutants such as nitrous oxide.¹⁴⁶ The federal government has invested millions of dollars in research surrounding these digesters¹⁴⁷ and the U.S. Department of Agriculture's Environmental Quality Incentives Program (EQIP) also provides CAFO operators hundreds of thousands of dollars to undertake digester projects.¹⁴⁸ Therefore, it is likely that these digesters will continue to be a tool utilized by CAFOs to mitigate methane emissions. This would reduce climate change impacts, however, any significant impact in terms of reduced local pollution of neighbors' or workers' air quality is unlikely.

The next and arguably simplest impact of CAFO air emissions regulation is that CAFOs may reduce their size. In other words, facilities could comply with air emissions regulations by minimizing the number of

¹⁴¹ Tomas, *supra* note 28, at 564.

¹⁴² *See id.* (explaining that digesters capture methane from CAFOs, thus reducing methane emissions).

¹⁴³ Siena Chrisman, *The FoodPrint of Dairy*, FOODPRINT, <https://perma.cc/5NAL-8D96> (last visited May 5, 2021).

¹⁴⁴ *See id.* ("Digesters need a steady high volume of waste to run efficiently, so the model of one megadairy supporting one digester further entrenches the large-scale confinement model of agriculture.").

¹⁴⁵ Tomas, *supra* note 28, at 564.

¹⁴⁶ *Id.* ("[D]igesters address only a portion of the methane emissions, and none of the nitrous oxide emissions, resulting from livestock production.").

¹⁴⁷ Chrisman, *supra* note 143.

¹⁴⁸ *See* DOUG GURIAN-SHERMAN, CAFOs UNCOVERED: THE UNTOLD COSTS OF CONFINED ANIMAL FEEDING OPERATIONS, UNION CONCERNED SCIENTISTS 1, 38 (2008), <https://perma.cc/6RJ3-VMHM> ("A rough approximation of the national CAFO subsidy can be made using the recommendations made by NCRS in finalizing the EQIP rule for the 2002 farm bill. The NCRS estimated at the time that approximately \$563 million, or 12.5 percent of the total funding, would go to CAFOs over a five-year period.") (emphasis added).

animals in each facility.¹⁴⁹ If the number of CAFOs remained the same, this would result in a reduction in the total number of CAFO-farmed animals. If the number of CAFOs grows, this would result in the same total number of livestock, but they would be smaller facilities spread out across more space. Either way, this change would undoubtedly decrease the strain on local communities and workers because there would be fewer animals per unit of area emitting these pollutants. The likelihood that CAFO operators will elect to reduce operation size is unclear, although research suggests that small and medium CAFOs can be just as cost-effective as large ones, depending on factors such as the style of management.¹⁵⁰ Therefore, this remains a potentially viable option as well.

A third approach would be for CAFO facilities to transition to pasture-based systems. Re-working the CAFO model at its core and moving livestock out into fields would reduce air emissions in a variety of ways.¹⁵¹ For example, solid manure decomposing aerobically in grazing systems releases 90% less methane than anaerobic open-pit manure lagoons.¹⁵² The transition would reduce pollution both locally and globally by spreading the animals (and their emissions) out across greater areas and allowing more natural cycles to process the compounds accordingly.¹⁵³ It is unclear what percentage of CAFO operations would elect to convert to a non-CAFO system, largely because pasture grazing-based systems would require more land than CAFO systems. However, studies have shown that smaller scale alternative livestock farms (such as pasture-based and hoop barn operations) can be just as economically viable as large CAFOs, and pasture-based systems, therefore, remain a potential path forward.¹⁵⁴

Lastly, due to the reality that compliance with air emissions regulations (as through each of the options previously discussed) could increase the cost of production and logistics, some CAFO operations would likely go out of business.¹⁵⁵ This could involve selling operations to

¹⁴⁹ See Ryan Levandowski, *Polluting 'til the Cows Come Home: How Agricultural Exceptionalism Allows CAFO's Free Range for Climate Harm*, 33 GEO. ENV'T L. REV. 151, 159 (2020) ("Under the 2009 Mandatory Reporting of Greenhouse Gases rule, EPA requires greenhouse gas reporting for large sources emitting 25,000 metric tons or more of CO₂ equivalent per year. The adopted version of the rule required the largest CAFOs to gather data and calculate their emissions of CH₄ and N₂O from manure management systems in the aggregate. The rule exempted small CAFOs from reporting requirements, even if they exceeded the emissions thresholds.").

¹⁵⁰ GURIAN-SHERMAN, *supra* note 148, at 2.

¹⁵¹ Tomas, *supra* note 28, at 563.

¹⁵² *Id.*

¹⁵³ *Id.* at 563–64 nn.200–01.

¹⁵⁴ GURIAN-SHERMAN, *supra* note 148, at 24.

¹⁵⁵ *Id.* at 59 ("When both water and air pollution reduction practices were considered, the total annual costs rose to as much as \$1.16 billion."); Ryan Nebeker, *Hundreds of Community Organizations Press for Nationwide Moratorium on CAFOs*, FOODPRINT (Sept. 16, 2020), <https://perma.cc/478H-R7CA> ("The limited market is tightly competitive for farmers, who make the choice between getting bigger and going out of business.").

another owner or possibly converting operations to a different agricultural enterprise. Reduction in the presence of CAFO facilities overall would have a straightforward and significant impact on EJ communities by removing the CAFO EJ hazards at their source.

Whether CAFOs simply add new technologies that bring them into compliance with air emissions regulation, decrease in size, shift to grazing-based systems, or go out of business altogether depends both on consumer demand for animal products and on taxpayer subsidies, which currently incentivize production.¹⁵⁶ If consumers and the government are willing to pay more to these industries to help them cope with new air emissions regulations, fewer CAFOs would go out of business or convert to a different enterprise. Regardless, any response that CAFO operators take in response to air emissions regulation would benefit EJ communities.

V. CONCLUSION

The expansion of the CAFO animal agriculture model can be attributed to the fact that the industry alone is not bearing its burdens of production. Instead, the environment and EJ communities continue to absorb a significant portion of CAFOs' costs. This Comment set out an argument that air emissions are the epicenter of both the environmental justice issues and regulatory solutions, which can be addressed through a variety of legal pathways at both federal and state levels. Regardless of which approach lawmakers ultimately adopt, one thing is clear: CAFOs pose serious risks to EJ communities, and addressing CAFOs' air emissions is a necessary battle in contemporary EJ work.

¹⁵⁶ Tomas, *supra* note 28, at 565.