

THE CHRONIC GROWING PROBLEM: ENVIRONMENTAL AND SOCIAL JUSTICE CONCERNS WITH INDOOR CANNABIS GROWS

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The rapid legalization of recreational marijuana across states has created environmental and social justice issues, particularly with indoor cultivation. Despite its federal illegality, twenty-four states and various territories have legalized marijuana, igniting a surge in indoor cultivation that bears significant environmental and social consequences. Indoor cultivation facilities require massive energy inputs, resulting in grid strain, pollution, and an increase in greenhouse gas emissions. Moreover, the placement of these facilities often occurs in historically marginalized low-income communities, furthering environmental injustice and social harms, as these areas are disproportionately affected by the pollutants emitted from the cultivation processes, such as molds, bacteria, and chemical hazards from pesticides and fossil fuel-based energy sources.

This Article delves into the intersection of environmental and social justice and the cannabis industry, highlighting how current practices exacerbate longstanding inequalities. It reveals that nonwhite ownership in the industry is strikingly low due to, among other things, high capital entry barriers and licensing challenges. This Article argues for a reevaluation of state policies regarding the siting of cultivation facilities, suggesting a two-pronged approach to mitigate injustice: enhanced environmental reviews that prohibit unbridled siting of these facilities in marginalized communities as well as mandatory community benefit agreements for commercial growers. Such measures aim to offer environmental relief, community

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involvement, and economic opportunities to the affected populations. By addressing these disparities, states can promote a more equitable cannabis industry that is mindful of its environmental footprint and its social impact.

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INTRODUCTION

Twenty-four states plus the District of Columbia (D.C.) and multiple territories have fully legalized adult recreational marijuana. While still federally illegal, there is a movement that shows no signs of stopping states from legalizing recreational marijuana use, sales, and cultivation. This Article discusses two equity concerns with this budding marijuana industry—exposure to environmental harms and a lack of equal access to financial benefits—and makes state and local regulatory recommendations to address each concern. The first area of inequity relates to the environmental hazards that arise from locating indoor marijuana cultivation facilities within already disadvantaged communities. As discussed at length in previous articles,¹ indoor marijuana cultivation can create significant negative environmental externalities, which include energy consumption and emissions, and environmental pollution, with large energy demand that cannot be offset by onsite renewable generation. This considerable energy demand results in grid vulnerability, blackouts, and early retirement of energy infrastructure. In addition, depending on the grid's electricity sources, indoor grow operations can increase greenhouse gas (GHG) emissions due to the use of fossil fuels. Environmentally, indoor cultivation can result in biological threats from exposure to molds, bacteria, fungus, and allergens, as well as chemical hazards from exposure to carbon dioxide, carbon monoxide, volatile organic compounds, fertilizers, and pesticides.

Not surprisingly, those externalities seep into host communities, resulting in new environmental justice issues with potentially concerning social externalities. Three recent cases filed in California illustrate the concern.² In each case, allegations center around the cultivators' use of generators (as many as nine semi-truck-sized diesel generators) that emit, sometimes for years, dangerous toxic pollutants into the local communities.³ The host communities in these cases are low-income and marginalized communities of color disproportionately burdened by indoor marijuana cultivation hazards.

¹ See Gina S. Warren, *Hotboxing the Polar Bear: The Energy and Climate Impacts of Indoor Marijuana Cultivation*, 101 B.U. L. REV. 979 (2021); Gina S. Warren, *Regulating Pot to Save the Polar Bear: Energy and Climate Impacts of the Marijuana Industry*, 40 COLUM. J. ENV'T L. 385 (2015).

² Complaint, *Env't Democracy Project v. Area51 Zero LLC*, No. 22-cv-4761, 2022 WL 3574123 (N.D. Cal. Aug. 18, 2022)[hereinafter *EDP v. A51 Complaint*]; Complaint & Petition for Writ of Mandate, *Env't Democracy Project v. City of Oakland*, No. 22-cv-020520, 2022 WL 16634846 (Cal. Super. Ct., Alameda Cnty. Oct. 21, 2022)[hereinafter *EDP v. Oakland Complaint & Petition*]; *Env't Democracy Project v. Green Sage Mgmt., LLC*, No. 22-cv-03970-JST, 2022 WL 4596612, (N.D. Cal. July 13, 2022).

³ See cases cited *supra* note 2.

Locating indoor cultivation facilities in environmental justice communities⁴ not only exposes communities to environmental hazards associated with the facilities but also to social concerns from locally unwanted land uses (LULUs). LULUs may deter investment in the communities for schools, child-care, rehabilitation centers, and medical facilities in part due to stigma and in part due to zoning restrictions that prevent these social centers from being built near marijuana facilities.

Studies show that where we live matters and can in fact impact quality of life and life expectancy. When it comes to life expectancy, “an individual’s zip code is a stronger predictor than genetics.”⁵ In the United States, “Black people are exposed to 21% more pollution than the U.S. population average, while they produce 23% less than the population average.”⁶ In addition to environmental injustice, these same marginalized communities suffer energy injustice in the form of insecurity and higher-than-average energy costs. According to the U.S. Department of Energy (DOE), “the poorest families in our country [are] paying upwards of 30% of their income for energy costs”⁷ as compared with 2.8% for the average family.⁸

The second area of concern is one of access to the marijuana industry’s benefits. Non-white ownership in the cannabis industry is low.⁹ “Only 12.1 percent of executives in the cannabis industry in 2022 were non-white, a one percent reduction from 2021 and below the national average of 20.1 percent for all US businesses.”¹⁰ So not only are minority community members disproportionately impacted by the

⁴ For purposes of this Article, environmental justice communities’ neighborhoods or communities that have historically been disproportionately affected by environmental pollution and hazards, which generally include low income and minority families and individuals.

⁵ AIR ALLIANCE HOUSTON, LOCAL POLICY RECOMMENDATIONS ADDRESSING ENVIRONMENTAL HAZARDS AND INEQUITABLE HEALTH RISKS IN HOUSTON’S COMPLETE COMMUNITIES 3 (2019), <https://airalliancehouston.org/wp-content/uploads/2019/12/AAH-Executive-Summary.pdf> [<https://perma.cc/NE3M-B9FN>].

⁶ Sophie Dulberg, *Black and Latino Residents Live in More Pollution Than They Cause. This is Clearer in Houston More Than Anywhere Else*, TEXAS HOUSERS (Mar. 21, 2019), <https://texashousers.org/2019/03/21/study-black-latino-pollution-consumption-exposure> [<https://perma.cc/ZJQ6-NUY5>].

⁷ *Energy Justice Dashboard*, U.S. DEP’T ENERGY, <https://www.energy.gov/justice/energy-justice-dashboard-beta> [<https://perma.cc/3RP3-AQEL>].

⁸ *Shares of Home Energy Expenditure in Average Household Incomes in Major Economies, 2021-2022*, INT’L ENERGY AGENCY (May 26, 2023), <https://www.iea.org/data-and-statistics/charts/shares-of-home-energy-expenditure-in-average-household-incomes-in-major-economies-2021-2022> [<https://perma.cc/NGK9-MWN9>].

⁹ MJBIZDAILY, DIVERSITY, EQUITY & INCLUSION IN THE CANNABIS INDUSTRY 5 (2023).

¹⁰ Genevieve Byrne, *Energy and Equity in Cannabis Cultivation*, FARM AND ENERGY INITIATIVE: VERMONT L. & GRADUATE SCH., 10 (Mar. 2023), <https://farmandenergyinitiative.org/wp-content/uploads/2023/03/FEI-CannabisReport-Final.pdf> [<https://perma.cc/HYM5-HBTC>]. Byrne notes that this is in part due to “financial barriers to cannabis business ownership.” *Id.*

negative environmental externalities of commercial operations within their communities, they have less access to own or reap the financial benefits of the facilities. In short, these populations reap few of the benefits while bearing many of the costs.¹¹

Through detailed analysis and case studies, Part II underscores the need for a more equitable approach to cannabis cultivation that balances economic interests with the health and well-being of local communities. The overarching theme of Part II is a call for a comprehensive framework that integrates environmental justice into the regulatory fabric of the cannabis industry, ensuring that the burgeoning growth of this sector does not exacerbate existing inequalities and environmental concerns.

In discussing the regulatory and zoning challenges of siting indoor cannabis cultivation facilities, Part III explores state marijuana licensing schemes and local ordinances that cultivation applicants must navigate, highlighting the variety in state restrictions on licenses and the requirements applicants must fulfill to receive and maintain these licenses. This Part stresses that local zoning ordinances and building codes significantly influence the locations and operational conditions of the buildings. While federal regulations like clean air acts and environmental protection acts may apply to cultivation facilities, most states manage the negative environmental externalities through state implementation plans and local regulations. Part III aims to dissect the effectiveness of these regulatory frameworks and examines whether they adequately address the environmental justice issues arising from the location of cannabis facilities in historically marginalized communities.

Part IV addresses the racial and ethnic disparities within the indoor cannabis cultivation industry. It presents a stark portrayal of the social inequities perpetuated by the current state of the cannabis business, particularly highlighting the low percentage of non-white ownership due to (among other things) high entry barriers and licensing processes. This Part examines how these barriers prevent equitable participation in the cannabis industry. This Part details how state marijuana licensing schemes and local ordinances can exacerbate these inequities. It reflects on the Minority Cannabis Business Association's report, which states that, despite the presence of social equity programs in several states, not one has achieved an equitable cannabis industry across all defined pillars of equity—industry, justice, community, and access. The document critiques these programs for not sufficiently addressing the negative externalities of situating cannabis facilities in environmentally just communities or providing meaningful economic opportunities for these communities.

¹¹ MINORITY CANNABIS BUS. ASS'N, NATIONAL CANNABIS EQUITY REPORT (2022).

In response to these challenges, Part V discusses potential opportunities to address cannabis injustice through a two-pronged approach of (1) enhanced state environmental review that includes an environmental justice analysis to prevent polluting facilities being located in any jurisdiction, but particularly in marginalized communities that have no or limited access to its benefits but bear the entirety of the environmental costs; and (2) mandatory adoption of community benefit agreements between large commercial growers and host communities that would provide an avenue for community ownership, involvement, decision-making, and access.¹²

I. THE ENVIRONMENTAL AND SOCIAL CONSEQUENCES OF SITING INDOOR MARIJUANA GROWS

Communities that are predominantly low-income and mostly comprised of minority groups often bear a disproportionate share of environmental hazards and are susceptible to various social issues. Section A and B of this Part discuss the energy and environmental justice concerns with indoor marijuana cultivation. Complaints filed by a California environmental group against indoor cannabis cultivation facilities in Oakland, discussed in Section A, highlight the need for more effective regulatory oversight, adoption of cleaner energy sources, and a greater focus on the social and environmental well-being of affected communities. As discussed in Section B, commercial indoor cultivation is one of the most energy-intensive industries in the United States. These facilities have a high demand for electricity for lighting, climate control, and other operations, often leading to the use of polluting diesel generators. Besides the air pollutants from diesel generators, the facilities emit volatile organic compounds, combustion by-products, and hazardous waste from pesticides and chemicals used in cultivation. These emissions pose significant health risks to both the surrounding communities and the workers in the facilities.

Part C looks beyond the physical environment to discuss social implications of living near a commercial indoor grow facility. By comparing and contrasting the impact of cultivation facilities with that of retail dispensaries, as well as liquor and tobacco shops, this discussion

¹² A special thank you to the faculty, students, interns, and fellows at the Institute for Energy and the Environment at the Vermont Law & Graduate School, as well as others not explicitly discussed in this article, who brainstormed these ideas, such as increasing tax on indoor growers that would go into a fund for social justice initiatives; limiting the size of indoor grows or the number of licenses available within a neighborhood; leasing local rooftop space to offset energy usage; and getting Regional Transmission Operators and Independent Systems Operators involved in the discussion. All of these are brilliant ideas and worth exploring in future articles.

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illustrates how cultivation facilities have a much larger social and environmental footprint.

A. *Environmental Justice Complaints Against Indoor Cannabis*

In August 2022, a California environmental group filed a complaint against the owner and operator of an indoor cannabis cultivation facility in West Oakland.¹³ The complaint alleges that the cultivator is exposing the community, which is identified as a “community of color that already suffers from high rates of adverse health conditions,”¹⁴ to dangerous toxic pollutants due to its use of diesel generators “the size of eighteen-wheeler trucks”¹⁵ to produce electricity. The complaint alleges the cultivator is running the generators without a permit in violation of the Clean Air Act and the state’s implementation plan (SIP).¹⁶ The California Environmental Quality Act (CEQA) guidelines provide:

If analysis of the project’s energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project’s energy use for all project phases and components, including transportation-related energy, during construction and operation.¹⁷

Project owners are also required to make good-faith estimates of long-term greenhouse gas impacts and give more consideration to water issues.¹⁸

The plaintiff alleged the defendant operated “two massive diesel generators twenty-four hours a day, seven days a week.”¹⁹ While it is unclear from this particular complaint why the defendant was running generators to provide electricity, another complaint filed by the same environmental group against the City of Oakland for a separate but

¹³ EDP v. A51 Complaint, *supra* note 2. Plaintiff, Environmental Democracy Project, is a California not-for-profit corporation represented by Williams Environmental Law (now known as Lexington Law Group). *Id.* Defendant, Area51 Zero, LLC, is a California limited liability company in the business of cultivating indoor marijuana for recreational purposes. *Id.*

¹⁴ *Id.* ¶ 25. The community is in West Oakland and according to the complaint, it was previously identified as a community “disproportionately burdened by pollution and with population characteristics that make them more sensitive to pollution.” *Id.*

¹⁵ *Id.* ¶ 1.

¹⁶ *Id.* ¶ 31; *id.* ¶ 22 (“The District’s EPA-approved rules state that any person that puts in place any equipment that may cause the emission of an air pollutant must first obtain an ‘authority to construct.’” (citing District Regulation 2, Rule 1-302)).

¹⁷ CAL. CODE REGS. tit. 14, § 15126.2(b) (2023).

¹⁸ CAL. CODE REGS. tit. 14, §§15064.4, 15155 (2023).

¹⁹ EDP v. A51 Complaint, *supra* note 2, ¶ 1.

similar situation states that cultivators were doing so because they do not have access to sufficient firm electricity sources.²⁰ According to Dr. Mills, there are more than 200 indoor marijuana growing facilities located in a ten mile radius in Oakland. And, apparently in the summer of 2020, those cultivators “overloaded the power grid and soon began running massive unpermitted generators”²¹

The complaint alleges that the city has repeatedly neglected to verify that the intended indoor cannabis growing sites are connected to the electrical grid, to confirm the grid can sustain their considerable energy demands, and to prevent the sites from substituting grid electricity with large diesel-powered generators.²² It states: “[O]n hundreds of occasions [the city] failed to ensure that proposed indoor cannabis cultivation facilities have access to the power grid, that the grid has sufficient power to fuel the facilities’ energy intensive operations, and that the facilities will not resort to using massive diesel-generators in lieu of grid power.”²³

This complaint notes that East Oakland is a low-income community of color that has historically been disadvantaged by “a lack of resources such as access to greenspace and grocery stores,” and that the city’s approval of “hundreds” of cannabis cultivation facilities within the community is unfair and a result of favoritism toward wealthier communities that want to keep out these types of land uses.²⁴

The complaint alleges that communities surrounding indoor cultivators are exposed to “pollution, odor, noise, and traffic.”²⁵ With regard to the pollution, the complaint points to “a variety of air contaminants including volatile organic compounds and combustion by-products,” citing research by Dr. Vera Samburova, an atmospheric scientist and professor at the University of Nevada, Reno.²⁶ In addition to air contaminants, the plaintiff alleged that indoor cultivation also causes

²⁰ EDP v. Oakland Complaint & Petition, *supra* note 2. The Williams Environmental Law firm, representing Environmental Democracy Project, filed a complaint against the City of Oakland, City of Oakland Planning and Building Department, City of Oakland Office of the City Administrators and named 1 Metals, Inc and DSF Management as real parties in interest. *Id.*

²¹ Evan Mills, *Environmental Justice, Up in Smoke*, SLATE (Apr. 6, 2023, 5:40 AM), <https://slate.com/technology/2023/04/indoor-cannabis-cultivation-environmental-risks-oakland.html> [<https://perma.cc/3F39-Z6FJ>] (discussing the environmental injustices associated with commercial cannabis growers in California).

²² EDP v. Oakland Complaint & Petition, *supra* note 2, ¶ 2.

²³ *Id.*

²⁴ *Id.* ¶ 4.

²⁵ *Id.* ¶ 7.

²⁶ *Id.* ¶ 35 (citing Vera Samburova et al., *Dominant Volatile Organic Compounds (VOCs) Measured at Four Cannabis Growing Facilities: Pilot Study Results*, 69 J. AIR WASTE MGMT. ASSOC. 1267 (2019)).

hazardous waste byproducts, such as those used in pesticides and other chemicals during the cultivation process.²⁷

According to the complaint, two large indoor cultivation facilities were approved by the city and exempted from CEQA permits as “existing facilities,” because the cultivators were “proposing to operate as a[n] indoor cannabis cultivator in an existing commercial facility and will use non-fossil fuel services to power the operation.”²⁸ The plaintiff points out two concerns with this rationale. First, there is not enough clean electricity to supply the needs of these facilities, which is why multiple facilities have been using diesel generators to supply their power needs.²⁹ Second, no generic commercial facility would be sufficient to house indoor cultivation activities without significant remodeling and renovation.

In response to these complaints, the California Department of Cannabis Control issued “compliance advisories” regarding diesel generators.³⁰ The advisories provide that cannabis cultivators may lawfully use diesel generators if they meet local and state laws that “support responsible usage,” “limit air pollution,” and “protect the environment.”³¹ Oakland’s local cannabis operator regulations now, however, explicitly ban diesel generators, and inspectors audited all licensed cultivators in Oakland and shut down diesel generators at about ten sites.³²

While the complaint forced the city of Oakland and the state of California to address the rising environmental justice concerns associated with indoor cultivation, this situation is just the tip of the iceberg. Diesel generators are the obvious polluters, but more concerning is the insidious mass below the surface. The need for diesel generators demonstrates the extreme energy consumption required for the effort—when connected to a grid that can sufficiently power an operation, emissions take on more surreptitious forms than an emissions-belching diesel generator. But they are just as damaging, if not more so, for their lack of obvious visibility.

²⁷ EDP v. Oakland Complaint & Petition, *supra* note 2, ¶ 36.

²⁸ *Id.* ¶ 42 (citing 14 Cal. Code Regs. §15183(f) and Exhibit A).

²⁹ *Id.* ¶ 44. The complaint refers to a separate court action where the plaintiff received a federal injunction to prevent a facility, Denver-based Green Sage, from operating diesel generators in the same area. *Id.* According to another complaint, Green Sage was running “nine semi-truck size diesel generators twenty-four hours a day, seven days a week, for over two years” before the federal court issued an injunction. *Id.* (citing Complaint, Env’t Democracy Project v. Green Sage Mgmt., No. 22-CV-03970 (N.D. Cal., July 6, 2022)).

³⁰ CAL. DEP’T CANNABIS CONTROL, NEW GUIDANCE ANSWERS LICENSEE QUESTIONS ON USE OF GENERATORS, (2023).

³¹ *Id.*

³² Mills, *supra* note 21 (discussing the environmental injustices associated with commercial cannabis growers in California).

B. *Energy and Environmental Hazards of Indoor Cannabis Grows*

Scholars from different disciplines, including Dr. Evan Mills,³³ Hailey Summers,³⁴ and Genevieve Byrne,³⁵ have written extensively about the energy demand³⁶ and negative climate and environmental externalities of indoor marijuana cultivation.³⁷ Dr. Mills points out that indoor marijuana facilities make up about 60%³⁸ of all production in the United States and utilize “electric lights brighter than the sun and datacenter-sized banks of air conditioners,” making them “among the most energy-intensive facilities conceived by humankind.”³⁹ They are

³³ See Evan Mills & Scott Zeramby, *Energy Use by the Indoor Cannabis Industry: Inconvenient Truths for Producers, Consumers, and Policymakers*, in THE ROUTLEDGE HANDBOOK OF POST-PROHIBITION CANNABIS RESEARCH (Dominic Corva & Joshua Meisel eds., 2021); Evan Mills, *The Carbon Footprint of Indoor Cannabis Production*, 46 ENERGY POL’Y 58 (2012); Evan Mills, *California: A Cannabis-Climate Train Wreck in Progress*, MEDIUM (Dec. 7, 2021), <https://evan-mills.medium.com/california-a-cannabis-climate-train-wreck-in-progress-e7c69d8e3aac> [<https://perma.cc/3EG3-9KL4>].

³⁴ Hailey M. Summers, Evan Sproul & Jason C. Quinn, *The Greenhouse Gas Emissions of Indoor Cannabis Production in the United States*, 4 NATURE SUSTAINABILITY 644 (2021).

³⁵ Byrne, *supra* note 10.

³⁶ See Warren, *Hotboxing the Polar Bear*, *supra* note 1; Warren, *Regulating Pot to Save the Polar Bear*, *supra* note 1.

³⁷ There is evidence that environmental damage of marijuana cultivation has increased, or even “skyrocketed” since its legalization. Michael Polson, *Making Marijuana an Environmental Issue: Prohibition, Pollution, and Policy*, 2 ENV’T AND PLAN. E: NATURE AND SPACE 229, 246 (2019). However, policymakers should be careful how they frame environmental issues so as not to revisit the hold prohibition’s socio-economic differentiation legacy. *Id.* at 247. A 2019 study “gathered data through ethnographic fieldwork and over 70 interviews with actors across the illegal/legal spectrum representing a range of dispositions toward cannabis and the environment—patient-cultivators, criminalized people, environmentalists, park rangers, property owners, and others.” *Id.* at 231. The purpose was to understand what has historically motivated some to make marijuana an “environmental issue.” *Id.* The author discusses that early stages of environmental concern were focused on anti-legalization measures, and calls to prohibit marijuana on public lands due to the environment degradation and to decry that marijuana brings nothing but “cartels, danger, violence, [and] pollution.” *Id.* at 234–36.

³⁸ Mills, *supra* note 21 (discussing the environmental injustices associated with commercial cannabis growers in California); Byrne, *supra* note 10, at 6 (“A 2021 survey of 127 commercial cannabis cultivation operations found that 54 percent of respondents grew exclusively indoors, an increase of 12 percent over the prior year.”). “Only 11 percent of respondents cultivated entirely outdoors.” Byrne, *supra* note 10, at 6 (citing CANNABIS BUS. TIMES, STATE OF THE CANNABIS CULTIVATION INDUSTRY REPORT 6 (2021), <https://giecdn.blob.core.windows.net/fileuploads/document/2021/06/02/soi%202021.pdf> [<https://perma.cc/LX8C-889A>]).

³⁹ Evan Mills, *Cannabis is Radioactive Enough. Grow It Outdoors to Keep Diablo Canyon’s Closure on Schedule*, S.F. EXAMINER (Oct. 12, 2023), https://www.sfexaminer.com/our_sections/forum/cannabis-is-radioactive-enough-grow-it-outdoors-to-keep-diablocanyonsclosure-on-schedule/article_3d1f9b4e-2a32-11ed-b8d3-d3ab4e9994b7.html [<https://perma.cc/U9VJ-5GXC>].

estimated to consume seventy times that of typical warehouses.⁴⁰ For example, according to Dr. Mills, one large cannabis facility planned in Blythe, Riverside County, is set to consume as much electricity as 90,000 homes.⁴¹ The reason for such high energy demand is the need to control the growing environment twenty-four hours a day, seven days a week, 365 days a year. This includes, among other things, requirements to control for humidity, CO₂,⁴² temperature, and lighting.⁴³ The exact amount of electricity consumed by indoor cultivation is unknown, but we know that it is “quite high” and “[u]nless facilities are powered exclusively by clean energy, they are a new major source of fossil fuel consumption and resulting greenhouse gas emissions.”⁴⁴

More research is needed for the GHG emission impacts of indoor grows; however, one recent study in Colorado indicates that it is highly dependent on two factors—location and cleanliness of the grid.⁴⁵ Locations that have extreme weather patterns (either hot or cold temperatures) require more energy to maintain heating, venting, and air-conditioning, leading to additional energy demand and increased GHG emissions.⁴⁶ Further, areas that rely more heavily upon fossil fuels will

⁴⁰ Mills, *supra* note 21 (discussing the environmental injustices associated with commercial cannabis growers in California).

⁴¹ Mills, *supra* note 39 (noting the irony that simply moving the marijuana industry outdoors “would take only 0.01% of the nation’s farmland,” which “is far less land than would be needed if a sea of solar panels were deployed to zero out the carbon or nuclear footprint of indoor grows”).

⁴² Summers, *supra* note 38; see also David Hodes, *New Data on the Environmental Impact of Cannabis Cultivation*, CANNABIS SCI. TECH. (Oct. 6, 2022), <https://www.cannabissciencetech.com/view/new-data-on-the-environmental-impact-of-cannabis-cultivation> [https://perma.cc/P9TD-3D2J] (noting that according to study co-author Jason Quinn, the study found that indoor cultivators are “in a situation where the revenue they can make enables them to not require optimization of the facility in terms of energy. And so, they’re putting in rich CO₂ but they’re doing massive air exchanges, like more air exchanges than most hospitals. That CO₂ is just being pushed out.”).

⁴³ Energy consumptions mainly come from the equipment operation of the indoor cultivations such as “lighting, HVAC . . . and dehumidification.” Zhonghua Zheng, Kelsey Fiddes & Liangcheng Yang, *A Narrative Review on Environmental Impacts of Cannabis Cultivation*, J. CANNABIS RES., Aug. 6, 2021, at 1, 6.

⁴⁴ Byrne, *supra* note 10, at 8.

⁴⁵ Summers et al., *supra* note 34.

⁴⁶ To demonstrate the extremes, the milder climate of Southern California produces emissions 56% less than that of eastern O’ahu in Hawai’i; still, producing a single ounce of dried cannabis emits the equivalent CO₂ of burning seven and sixteen gallons of gasoline, respectively. Hailey Summers & Jason Quinn, *Growing Cannabis Indoors Produces a Lot of Greenhouse Gases—Just How Much Depends on Where It’s Grown*, CONVERSATION (Mar. 8, 2021, 11:35 AM), <https://theconversation.com/growing-cannabis-indoors-produces-a-lot-of-greenhouse-gases-just-how-much-depends-on-where-its-grown-156486> (discussing their article). Dr. Mills suggests these numbers might be low because they fail to account for storage or processing. Krista Charles, *Colorado’s Legal Cannabis Farms Emit More Carbon Than Its Coal Mines*, NEWSIDENTIST (Mar.

increase GHG emissions through their electricity use than regions with more renewables or low carbon energy sources.⁴⁷

Of note, however, it is not currently possible to switch indoor cultivators to on-site or off-site renewable energy sources, because there is simply not enough clean energy available to supply their needs. For example, cannabis production alone in California's Coachella Valley is set to "eclipse the entire output of all 40 wind-powered projects located in the area."⁴⁸ And, even in areas with extensive solar power availability, less than five percent could be generated by rooftop solar due to a lack of available roof space.⁴⁹ Further, the substantial electricity requirements for growing cannabis indoors can lead to higher costs for both connecting to the power grid and for the energy itself. Additionally, the surge in electricity usage from these new growing operations could push the grid to its highest demand level, potentially resulting in increased electricity rates for all consumers.⁵⁰

In addition to its energy intensity, indoor grows generate other environmental harms that impact its workers and surrounding communities. For example, the Colorado Department of Public Health and Environment has identified areas of occupational hazard to include biological threats from heat, molds, bacteria, fungus, and allergens as well as chemical threats from carbon dioxide, carbon monoxide, volatile organic compounds, biogenic volatile organic compounds, fertilizers,

8, 2021), <https://www.newscientist.com/article/2270366-colorados-legal-cannabis-farms-emit-more-carbon-than-its-coal-mines> [<https://perma.cc/3X79-TJCR>]. Further, contrast the California and Hawaii numbers with the much smaller amount of carbon emissions produced by indoor vertical farms on average. Till Weidner, *A Holistic Look at Vertical Farming's Carbon Footprint and Land Use*, AGRITECTURE, <https://www.agritecture.com/blog/2022/5/9/a-holistic-look-at-vertical-farmings-carbon-footprint-and-land-use> [<https://perma.cc/V2P2-Z5LK>].

⁴⁷ Summers et al., *supra* note 34. As a broad example, out of the three largest cannabis producers by volume—Colorado, California, and Oregon—only Oregon relies on significant renewable profile accounting for more than two-thirds of electricity production, where California and Colorado only produce roughly one-third via renewable means. *U.S. States*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state> [<https://perma.cc/7A7R-C3V5>]; *Volume of Cannabis Production in the United States in 2022, by State*, STATISTA (Jan. 30, 2023), <https://www.statista.com/statistics/1281581/cannabis-production-volume-by-state-us/#:~:text=Cannabis%20production%20volume%20in%20the%20United%20States%20in%202022%2C%20by%20state&text=Colorado%20was%20home%20to%20the,623%20metric%20tons%20of%20cannabis> [<https://perma.cc/A9BN-44QP>].

⁴⁸ Mills & Zeramby, *supra* note 33.

⁴⁹ Evan Mills, *California: A Cannabis-Climate Train Wreck in Progress*, MEDIUM (Dec. 7, 2021), <https://evan-mills.medium.com/california-a-cannabis-climate-train-wreck-in-progress-e7c69d8e3aac> [<https://perma.cc/JW5U-M4B7>].

⁵⁰ Byrne, *supra* note 10, at 14 (stating "the high energy needs of indoor commercial cannabis cultivation can raise both interconnection costs and energy supply costs for growers. There is also a risk that electric demand from new cultivation facilitates will increase the utility's coincident peak load, or the maximum demand for electricity from all users on the grid system, which is likely to increase prices for all ratepayers.").

and pesticides.⁵¹ Emissions from these facilities could have negative health impacts on the community due to exposures to: “(1) high concentrations of terpene oxidation products, (2) high concentrations of particulate matter and ozone, and (3) odor.”⁵² Odor from these facilities can be quite noxious with some researchers recommending an odor setback, similar to those required for swine or bovine facilities.⁵³

With regard to ozone, a recent study of four commercial indoor grow facilities in California and Nevada found that just one “adult Cannabis plant emits hundreds of micrograms of biogenic volatile organic compounds per day and thus can trigger the formation of tropospheric ozone (approximately $2.6 \text{ g day}^{-1} \text{ plant}^{-1}$) and other toxic air pollutants.”⁵⁴ The study concluded: “high concentrations of VOCs [volatile organic compounds] emitted from cannabis grow facilities can lead to the formation of ozone, secondary VOCs (e.g., formaldehyde and acrolein), and particulate matter.”⁵⁵ Interestingly, the study noted offhand that cannabis facilities are typically sited “in urbanized areas near automobile roads, which are [already] known areas of high NOx concentration.”⁵⁶ While not as bad as transportation-related sources, the

⁵¹ David Hodes, *New Data on the Environmental Impact of Cannabis Cultivation*, 5 CANNABIS SCI. & TECH. 16, 16–20 (2022); see also Davi de Ferreyro Monticelli et al., *Cannabis Cultivation Facilities: A Review of Their Air Quality Impacts from the Occupational to Community Scale*, 56 ENV'T SCI. TECH., 2880, 2889 (2022) (noting that “an interview of CCF workers found that 71% presented some work-related symptoms, and the majority of symptoms (65%) was respiratory,” however more studies should be done to determine specific causal relationships).

⁵² Monticelli et al., *supra* note 51, at 2889. Interestingly, under prohibition, the distinctive smell of marijuana often provided probable cause for law enforcement to pursue criminal action. However, as marijuana moves into the legal market, the smell has taken on new legal dimensions. It has become a matter of public and commercial law, influencing nuisance and zoning regulations. For instance, Professor William Garriott points out that while the smell can still be a legal tool for police, it's also a point of contention for communities where cannabis businesses operate, leading to nuisance complaints. William Garriott, *Change Is in the Air: The Smell of Marijuana, after Legalization*, 45 L. & SOC. INQUIRY 995, 997, 1003 (2020).

⁵³ Monticelli et al., *supra* note 51, at 2891 (noting “it is also necessary to create an odor-related setback guideline for this industry, similar to what has been done for swine production systems. This task could be achieved by distancing from communities or through odorous emission control. Another option is the adoption of nonexceeding thresholds at the property boundaries. This fence line regulation approach could also prevent situations in which greenhouses previously established in residential neighborhoods for nonodorous crops are suddenly repurposed for cannabis varieties with potential for high odor.”).

⁵⁴ Vera Samburova et al., *Dominant Volatile Organic Compounds (VOCs) Measured at Four Cannabis Growing Facilities: Pilot Study Results*, 69 J. AIR & WASTE MGMT. ASS'N. 1267, 1267 (2019).

⁵⁵ *Id.*

⁵⁶ *Id.* at 1268.

“cannabis industry is already a top-10 VOC source in cities where it has been legalized.”⁵⁷

C. *Social Harms of Siting Indoor Cannabis Grows*

Our “environment” is not simply air, land, and water. It also consists of the social and economic environment of where a person lives and frequents as part of their routine life activities.⁵⁸ When these areas are polluted or otherwise create harmful environments, it negatively impacts the quality of life of its community members. In addition, research shows that the inequitable distribution of air pollution and other environmental hazards tend to overlap with areas of lower socioeconomic status and with fewer social resources and poor land use conditions.⁵⁹

Tobacco and liquor stores are already disproportionately located in majority-minority and low-income communities⁶⁰ and now it appears

⁵⁷ Davi de Ferreryro Monticelli et al., *supra* note 51, at 2891. As noted by Dr. Mills, “A recent investigation determined that 600 cultivation facilities within the city of Denver, Colorado, could double the prevailing levels of VOCs, while air pollution in that city already periodically violates federal limits.” See Mills & Zeramy, *supra* note 34 (citing Chi-Tsan Wang et al., *Potential Regional Air Quality Impacts of Cannabis Cultivation Facilities in Denver, Colorado*, 19 *ATMOSPHERIC CHEMISTRY & PHYSICS* 13973, 13973 (2019)).

⁵⁸ Jeremy Mennis, Gerald J. Stahler & Michael J. Mason, *Risky Substance Use Environments and Addiction: A New Frontier for Environmental Justice Research*, 13 *INT’L J. ENV’T RSCH. & PUB. HEALTH*, 607, 703 (June 18, 2016) (observing “[t]his constellation of places where one resides and regularly travels to engage in daily activities is referred to as an individual’s activity space”). There are many other environmental harms that are outside of the scope of this article. For example, in Colorado alone, indoor cultivators create 7.3 million pounds of plant waste annually; add in the subsequent waste generated from retail sales like vape cartridges and “doob tubes” for single sales and the problem magnifies. See Hannah Leigh Myers, *The Cannabis Industry Has a Waste Problem and the Solutions Could Change Packaging Norms Beyond Marijuana*, ASPEN PUBLIC RADIO (Sept. 8, 2022, 8:01 PM), <https://www.aspenpublicradio.org/environment/2022-09-08/the-cannabis-industry-has-a-waste-problem-and-the-solutions-could-change-packaging-norms-beyond-marijuana>; Gaspard Le Dem, *Weeding out Single-use Cannabis Packaging Waste*, PACKAGINGDIVE (Apr. 20, 2023), <https://www.packagingdive.com/news/cannabis-packaging-plastic-high-5-initiative-maryland/648007> [<https://web.archive.org/web/20230622112807/https://www.packagingdive.com/news/cannabis-packaging-plastic-high-5-initiative-maryland/648007>] (“[P]lastics ‘dominated’ the cannabis market, accounting for more than half of all packaging sold in 2021, including ‘bottles, jars, pouches, blisters, clamshells, caps, lids, vials, containers, and dropper pipettes among others.’”).

⁵⁹ Mennis, Stahler & Mason, *supra* note 58, at 608–09 (“While substantial research has shown that the spatial distribution of environmental risks regarding air pollution and other industrial environmental hazards are inequitably distributed with regards to race and class, many of these same characteristics of the built and socioeconomic environment which are associated with technologically generated environmental risks are also associated with risky substance use behaviors, including factors associated with land use and neighborhood level indicators of socioeconomic status.”)

⁶⁰ *Id.* at 609–10.

cannabis facilities are following suit. Two studies highlight the social and environmental dynamics of cannabis dispensary locations.

A 2015 study examined the correlation between the density of marijuana dispensaries and hospitalizations related to marijuana abuse or dependence in California, spanning from 2001 to 2012.⁶¹ This study found that areas with a higher concentration of dispensaries experienced more hospitalizations linked to marijuana use.⁶² The dispensaries were predominantly located in zip codes with lower median incomes, a higher population of males, fewer Asian Americans, and most commonly in the 30–39 age range.⁶³ The demographic breakdown of these areas was 4.7% African American, 26.7% Hispanic, and 55.3% non-Hispanic white. At that time, the majority of marijuana users in California were young, white males.⁶⁴ The study's findings suggest that the proliferation of dispensaries in these regions contributes to the ongoing social burdens associated with cannabis use.⁶⁵ At the time of the study, twenty-two states and D.C. had legalized medical marijuana.⁶⁶

A 2013 study focused on whether the 275 medical marijuana distribution centers in Denver have the stigma of being LULUs.⁶⁷ The study notes that dispensaries in Denver tend to be in “converted residential houses and neighborhood strip malls.”⁶⁸ At the time, twenty states and D.C. had legalized medical marijuana laws.⁶⁹ The authors studied two questions: (1) whether the facilities were more likely to be opened in minority or poor neighborhoods than white, affluent neighborhoods; and (2) whether these centers “increase social isolation over time.”⁷⁰ “In short, these facilities appear to raise questions about

⁶¹ Christian Mair, Bridget Freisthler, William R. Ponicki & Andrew Gaidus, *The Impacts of Marijuana Dispensary Density and Neighborhood Ecology on Marijuana Abuse and Dependence*, 154 *DRUG & ALCOHOL DEPENDENCE* 111, 112 (2015).

⁶² *Id.* at 114 (stating “[t]he density of local marijuana dispensaries is associated with a greater number of hospitalizations with a primary or secondary marijuana abuse/dependence code.”).

⁶³ *Id.* at 112. The article notes that in Denver, store-front dispensaries “tend to be located in neighborhoods with higher crime rates and a higher proportion of retail jobs.” *Id.*

⁶⁴ *Id.* at 113.

⁶⁵ Michael Polson, *Making Marijuana an Environmental Issue: Prohibition, Pollution, and Policy*, 2 *ENV'T & PLAN. E: NATURE & SPACE* 229, 233 (2018) (noting that “cannabis is already saddled with these historical burdens, which are even now creeping into post-legalization settings.”).

⁶⁶ Mair, Freisthler, Ponicki & Gaidus, *supra* note 61, at 111.

⁶⁷ Lyndsay N. Boggess, Deanna M. Perez, Kathryn Cope, Carl Root & Paul B. Stretesky, *Do Medical Marijuana Centers Behave Like Locally Undesirable Land Uses? Implications for the Geography of Health and Environmental Justice*, 35 *URB. GEOGRAPHY* 315 (2014).

⁶⁸ *Id.* at 316.

⁶⁹ *Id.*

⁷⁰ *Id.*

environmental justice as they relate to health and geography,⁷¹ because most LULUs are located in minority or poor communities where developers find less opposition.⁷²

The study showed that distribution facilities were located in higher Hispanic (32.39%) but lower Black (7.94%) neighborhoods, and in neighborhoods with an increased rate of poverty and crime.⁷³ However, the authors noted that “only some of these differences are statistically significant.”⁷⁴ In fact, the authors found no statistically significant evidence that marijuana dispensaries would likely be located in minority or poor communities,⁷⁵ when “other neighborhood demographic and business-related factors are controlled.”⁷⁶ The only predictors of where a facility would likely be located were crime rate and retail job opportunities.⁷⁷

This is the only study to investigate the relationship between environmental justice communities and the siting of marijuana dispensaries.⁷⁸ It is also over ten years old, and much has changed in the marijuana industry, with twenty-four states plus D.C. that have legalized recreational, not just medical, marijuana.⁷⁹

In summarizing these studies, it is evident that while cannabis dispensaries tend to be located in lower income, majority-minority areas, the situation is nuanced. The impact of dispensaries on communities differs from that of cultivation facilities. Distribution facilities are more akin to liquor stores and retail operations that create no more negative environmental externalities than other retail businesses. Cultivation facilities are more akin to waste facilities, factories, and garbage incinerators with their environmental footprint. In addition, locally owned distribution facilities bring in revenue and jobs for the community. Cultivation facilities are generally owned by wealthier corporate players. These insights raise concerns about environmental justice and the equitable placement of cannabis-related businesses within urban landscapes.

⁷¹ *Id.* at 319.

⁷² *Id.*

⁷³ *Id.* at 325.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.* at 329.

⁷⁷ *Id.* at 325.

⁷⁸ *Id.* at 331.

⁷⁹ *Factbox: U.S. States Where Recreational Marijuana is Legal*, REUTERS (June 1, 2023, 12:01 PM), <https://www.reuters.com/world/us/us-states-where-recreational-marijuana-is-legal-2023-05-31> [<https://web.archive.org/web/20231205062607/https://www.reuters.com/world/us/us-states-where-recreational-marijuana-is-legal-2023-05-31>].

II. PERMITTING AND SITING INDOOR MARIJUANA CULTIVATION FACILITIES

Applicants who wish to legally grow marijuana must first become licensed cannabis cultivators in accordance with the state's marijuana licensing scheme. The state restrictions, outlined in Section A of this Part, are varied as to how many licenses are granted and what requirements the applicants must meet to receive and keep the licenses. Once they are licensed, however, cultivators must work through the state and local jurisdiction requirements for siting their facilities. While other federal regulations (like clean air acts and environmental protection acts) can be implicated for cultivation facilities, most states regulate these negative environmental externalities through state implementation plans and state regulation. Local zoning ordinances and building codes, discussed in Section B of this Part, also come into play as jurisdictions can restrict where facilities can be placed and what conditions must be met for operation of the building itself. Taken together these state and local regulations can create a hodgepodge of laws for cultivators to navigate, as well as a lack of cohesive decisionmaking, which can result in inequitable treatment across jurisdictions.

A. State Marijuana Licensing Schemes

Cannabis is still an illegal drug in the United States under federal statute and is not allowed to be cultivated, consumed, sold, etc., without criminal penalty.⁸⁰ After states began legalizing or decriminalizing it, the federal government stepped to the background and allowed it to be regulated at the state and local levels.⁸¹ As of writing this Article, twenty-four states plus D.C. and a handful of territories have legalized recreational cannabis use and each have requirements for licensing of cultivation facilities within their borders.⁸² Some states require certain enhanced environmental standards to be met.⁸³ Most do not.

⁸⁰ 21 U.S.C. § 841 (criminalizing controlled substances); 21 U.S.C. § 812(c)(10) (including marihuana [sic] as a Schedule I controlled substance).

⁸¹ Consolidated Appropriations Act of 2023, Pub. L. No. 117-328, 136 Stat. 4561 § 531 (preventing the DOJ from using appropriated funds to interfere with state laws legalizing medical marijuana); LISA N. SACCO, JOANNA R. LAMPE & HASSAN Z. SHEIKH, CONG. RSCH. SERV., IF12270, THE FEDERAL STATUS OF MARIJUANA AND THE EXPANDING POLICY GAP WITH STATES (2023).

⁸² REUTERS, *supra* note 79.

⁸³ All business licensees, regardless of the industry, are required to adhere to existing federal, state and local regulatory and permitting requirements. This Section addresses additional environmental controls that a few states have included in their marijuana permitting process.

California, Massachusetts, and Illinois are the forerunners. California legalized recreational marijuana in 2016.⁸⁴ It did not originally require applicants to meet environmental standards to be licensed, but the framework was amended in 2022 to require indoor cultivators to report their energy usage,⁸⁵ and in 2023 to require cultivators to keep their GHG emission intensity in line with the state Renewable Portfolio Standard⁸⁶ or purchase carbon offset credits.⁸⁷ Likewise, Massachusetts legalized recreational marijuana in 2016 and amended its statutory scheme in 2020 to require compliance with energy efficiency and reporting standards.⁸⁸ Applicants must show that they have a working environmental compliance plan to decrease overall energy and water consumption, increase reliance on renewable energy, and reduce waste.⁸⁹ Massachusetts also requires licensees to keep their lighting intensity within certain limits.⁹⁰

⁸⁴ See Cal. Health & Safety Code § 11362.1 (legalizing recreational use of marijuana for adults twenty-one and older as a result of Prop. 64, which passed Nov. 8, 2016).

⁸⁵ CAL. CODE REGS. tit. 4, § 15020(e).

⁸⁶ CAL. CODE REGS. tit. 3, § 8305 (2019). Cultivators must “ensure that electrical power used for commercial cannabis activity meets the average electricity greenhouse gas emissions intensity required by their local utility provider pursuant to the California Renewables Portfolio Standard Program”

⁸⁷ *Id.* § 8305(b) (“If a licensee’s average weighted greenhouse gas emissions intensity is greater than the local utility provider’s greenhouse gas emissions intensity for the most recent calendar year, the licensee shall provide evidence of carbon offsets or allowances to cover the excess in carbon emissions”).

⁸⁸ 935 MASS. CODE REGS. § 500.120(11) (2021) (“A Marijuana Cultivator shall satisfy minimum energy efficiency and equipment standards established by the Commission and meet all applicable environmental laws, regulations, permits and other applicable approvals including, but not limited to, those related to water quality and quantity, wastewater, solid and hazardous waste management, and air pollution control, including prevention of odor and noise . . . as a condition of obtaining a final license . . . and as a condition of renewal”).

⁸⁹ COMMONWEALTH OF MASS. CANNABIS CONTROL COMM’N, ENERGY AND ENVIRONMENT COMPILED GUIDANCE 4 (2020), https://mass-cannabis-control.com/wp-content/uploads/200825_Energy_and_Environment_Compiled_Guidance.pdf [<https://perma.cc/6LAJ-JZ5F>] (fifty-seven page “Energy and Environment Compiled Guidance” assisting licensed Marijuana Establishments with developing best practices for energy efficiency and environmental concerns to comply with state regulations).

⁹⁰ *Id.* at 15 (requiring licensees to keep lighting intensity at or below thirty-six to fifty- watts per square foot). Of note, this is still a very high lighting intensity as typical office buildings utilize two to five watts per square foot. *Commercial Energy Library*, APOGEE INTERACTIVE, INC., [https://c03.apogee.net/mvc/home/hes/land/el?utilityname=union-power&spc=cel&id=960#:~:text=In%20an%20office%20building%20the,5\)%20watts%20per%20square%20foot.&text=Buildings%20with%20computer%20systems%20and,10%20watts%20per%20square%20foot](https://c03.apogee.net/mvc/home/hes/land/el?utilityname=union-power&spc=cel&id=960#:~:text=In%20an%20office%20building%20the,5)%20watts%20per%20square%20foot.&text=Buildings%20with%20computer%20systems%20and,10%20watts%20per%20square%20foot) [<https://perma.cc/9X4N-CA4A>] (“In an office building the lighting and normal ‘floor’ (equipment) electrical loads typically average from two (2) to five (5) watts per square foot. However, architectural or other considerations may make them considerably higher. Buildings with computer systems and other electronic equipment can have electrical loads as high as 5 to 10 watts per square foot.”).

Finally, Illinois legalized recreational marijuana in 2020 and its original licensing framework required applicants to file an environmental plan to show how they would minimize their carbon footprint and reduce environmental impacts.⁹¹ Illinois also included a lighting intensity requirement of no greater than thirty-six watts per square foot.⁹²

In addition to state licensing requirements, many localities also include environmental regulations to which a licensee must adhere. For example, Mono County in California requires applicants to navigate a permitting process to have a license to operate commercial cannabis activities within the county.⁹³ The process requires, among other things, a “Negative Declaration” of no environmental impact or completion of an “Environmental Impact Report,” and the permit must be in accordance with the state environmental quality provisions.⁹⁴

While these extra licensing provisions can create a “regulatory hook” to get cultivators to decrease their emissions and energy consumption, they can also “prevent market entry for cultivators without access to

⁹¹ 410 ILL. COMP. STAT. 705/1-5 (2019) (“In the interest of allowing law enforcement to focus on violent and property crimes, generating revenue for education, substance abuse prevention and treatment, freeing public resources to invest in communities and other public purposes, and individual freedom, the General Assembly finds and declares that the use of cannabis should be legal for persons 21 years of age or older and should be taxed in a manner similar to alcohol”).

⁹² *Id.* § 20-15 (“The Lighting Power Densities (LPD) for cultivation space commits to not exceed an average of 36 watts per gross square foot of active and growing space canopy . . .”). Compare this to the 15 watt per square foot consumed by vertical farms utilizing LED lights. OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, ENERGY SAVINGS POTENTIAL OF SSL IN AGRICULTURAL APPLICATIONS, EXECUTIVE SUMMARY (2020). As of 2019, virtually all vertical farms used LED lighting, contrasting with 11% of indoor marijuana growing operations. *Id.* at Executive Summary, 19–20. The marijuana operations typically used 56 watts per square foot with overhead high-pressure sodium or ceramic metal halide lighting, or 35 watts with LEDs. *Id.* at Executive Summary, 10.

⁹³ *Commercial Cannabis Activity Use Permit*, MONO COUNTY COMMUNITY DEVELOPMENT DEPT., https://monocounty.ca.gov/sites/default/files/fileattachments/clerk_recorder/page/29287/cannabis_application_packet.pdf [https://web.archive.org/web/20231014095841/https://monocounty.ca.gov/sites/default/files/fileattachments/clerk_recorder/page/29287/cannabis_application_packet.pdf].

⁹⁴ *Id.* The findings required to issue a permit include:

- A. All applicable provisions of the Land Use Designations and Land Development Regulations are complied with, and the site of the proposed use is adequate in size and shape to accommodate the use and to accommodate all yards, walls and fences, parking, loading, landscaping and other required features.
- B. The site for the proposed use relates to streets and highways adequate in width and type to carry the quantity and kind of traffic generated by the proposed use.
- C. The proposed use will not be detrimental to the public welfare or injurious to property or improvements in the area in which the property is located.
- D. The proposed use is consistent with the map and text of this General Plan and any applicable area plan.

significant capital,”⁹⁵ which leads to Part IV, discussing the lack of equity in the cannabis industry.

B. *Local Restrictions on Siting Marijuana Facilities*

Siting indoor cultivation facilities presents local challenges and has unintended consequences that limit the availability of needed health, education, and rehabilitation facilities within a neighborhood, either by diminishing the desire to invest in communities overrun by cannabis cultivators, or by restricting the areas where these needed facilities can be placed. They can deter investment in community infrastructure, such as schools and healthcare facilities, due to associated stigmas and restrictive zoning laws.

Patricia Salkin first wrote about the impending complications of siting controversial medical marijuana facilities in 2011, when only fourteen states and D.C. had legalized medical marijuana for qualifying patients.⁹⁶ She noted that when determining locations for potentially contentious land developments—like marijuana facilities—it is essential to take into account social justice to prevent a bias in siting these developments in communities typically marginalized and populated by a higher proportion of low-income and minority residents.⁹⁷

In general, localities have chosen to regulate the siting of marijuana facilities by (1) banning them altogether either permanently or through moratoria; (2) use restrictions or designated zones; (3) setbacks and buffers; and (4) area or density controls.⁹⁸

⁹⁵ Byrne, *supra* note 10, at 9 (“State and local lawmakers should be aware that energy regulations designed to mitigate the environmental impact of commercial cannabis may create additional barriers to market entry by imposing increased costs on license applicants.”); *id.* at 11.

⁹⁶ Patricia E. Salkin, *Regulating Controversial Land Uses*, 39 REAL ESTATE L.J. 526, 536–39 (2011). The states were Alaska, California, Colorado, Hawaii, Maine, Michigan, Montana, New Jersey, New Mexico, Nevada, Oregon, Rhode Island, Vermont, and Washington. *Id.*; see also Donald J. Kochan, *Incumbent Landscapes, Disruptive Uses: Perspectives on Marijuana-Related Land Use Control*, 3 TEXAS A&M J. PROP. L. 35 (2016) (discussing early land use controls and NIMBY actions). Kochan notes that “[w]e can learn quite a bit about shifting land use policy—necessitated by the relatively radical introduction of previously unacceptable, indeed illegal, activities into the land use mix—through the lens of the emerging scholarship on theories of disruption and disruptive innovation.” *Id.* at 38.

⁹⁷ Salkin, *supra* note 96, at 541 (stating we “must be mindful of social justice considerations when deciding where to locate controversial land uses to ensure that they are not disproportionately placed in traditionally underrepresented communities where there tend to be more residents who are low-income and minority”).

⁹⁸ William C. Bunting & James M. Lammendola, *Why Localism is Bad for Business: Land Use Regulation of the Cannabis Industry*, 17 N.Y.U. J.L. & BUS. 267, 273–79 (2021).

Bans and Moratoria. Some cities and localities prohibit the siting of cultivation and distribution facilities within their boundaries under nuisance law. Given that marijuana is federally illegal, it could be considered nuisance *per se* to allow a facility within any jurisdiction.⁹⁹ In general, however, whether a locality has the authority to ban outright marijuana facilities depends on state law. Professors William C. Bunting and James M. Lammendola examined laws in multiple states and noted that “[w]ith respect to cannabis, some state statutes explicitly provide for broad local authority to regulate cannabis land uses, while others impose significant statutory constraints upon that authority. Other state statutes are silent on the subject.”¹⁰⁰ San Bernadino County is an example of a county that wholly prohibits commercial cannabis activity within its borders.¹⁰¹ Interestingly, however, the county notes that this restriction “does not apply within the jurisdictions of the 24 incorporated cities and towns in the county,” so those seeking to get into the business must look further at the specific city’s requirements.¹⁰²

Use Restrictions or Designated Zones. Another way to regulate where marijuana facilities are located is through use restrictions and zoning districts.¹⁰³ Some jurisdictions require that facilities be located in existing commercial districts (as opposed to residential) or within newly designated cannabis areas. For example, in Mendocino County, California, indoor cultivation is allowed only in specific zones and generally only with additional zoning clearance by the oversight department.¹⁰⁴ Likewise, the city of Pomona, California, established an overlay district for commercial cannabis activity, which prohibited commercial cannabis activity in other zones.¹⁰⁵ Interestingly, applicants

⁹⁹ Salkin, *supra* note 96, at 537.

¹⁰⁰ Bunting & Lammendola, *supra* note 98, at 273. States that have delegated express authority to localities to regulate as they choose (including issuing outright bans) include Colorado, Vermont, Alaska, and Michigan. *Id.* at 273–75. States that limit the locality’s authority to issue bans include Delaware, Texas, Hawaii, Illinois, and Oklahoma. *Id.*; see also *City of Riverside v. Inland Empire Patients Health and Wellness Ctr., Inc.*, 300 P.3d 494, 506 (Cal. 2013) (holding that the local ordinance banning facilities was not preempted by state law); *White Mountain Health Ctr., Inc. v. Maricopa County*, 386 P.3d 416, 438 (Ariz. Ct. App. 2016) (holding that state law preempted municipality from banning marijuana facilities as *per se* nuisances).

¹⁰¹ *Cannabis Enforcement Program: Cannabis FAQs*, SAN BERNARDINO COUNTY: LAND USE SERVICES, <https://lus.sbcounty.gov/cannabis-enforcement-program> [https://perma.cc/R9RH-B5K2].

¹⁰² *Id.*

¹⁰³ Bunting & Lammendola, *supra* note 98, at 276–77.

¹⁰⁴ MENDOCINO COUNTY, CAL., CODE OF ORDINANCES § 20.242 (2023).

¹⁰⁵ Mike Curley, *Pomona Storefront Owner Can’t Undo City’s Cannabis Plan*, LAW360 (June 16, 2023, 2:15 PM), <https://www.law360.com/real-estate-authority/articles/1689648/pomona-storefront-owner-can-t-undo-city-s-cannabis-plan> [https://perma.cc/NV94-DD4Z].

looking to cultivate in the new zone are not required to obtain “additional environmental review” unless the specific project would generate significant environmental effects.¹⁰⁶ In addition to designated zones, marijuana siting can also run up against exclusionary zones such as “drug-free zones,” like in *Green Genie, Inc. v. City of Detroit*, where an applicant was denied a license to operate a distribution facility proposed to be located within a “drug-free zone” under the City’s code, despite the fact that the code was enacted prior to the state’s legalization of marijuana.¹⁰⁷

Setbacks and Buffers. Other localities regulate it “by imposing distance restrictions similar to those used in regulating adult businesses”¹⁰⁸ Many times these setback requirements are for areas with children including daycares, schools, and parks.¹⁰⁹ Some examples include Santa Rosa, California, which requires cannabis businesses be located at least 600 feet from K-12 schools,¹¹⁰ and a 1,000-foot setback in Denver “from schools, childcare establishments, alcohol or drug treatment facilities, city-owned rec centers or city-owned outdoor pools.”¹¹¹

Area or Density Controls. Finally, localities can control where marijuana facilities are sited through area and density controls.¹¹² For example, Los Angeles caps the number of dispensaries at seventy while Berkeley allows only three.¹¹³

While some have noted that caps are intended “to preserve the character of the community and to prevent a negative community

¹⁰⁶ *Id.* (citing *Lucas v. City of Pomona*, 309 Cal.Rptr.3d 605 (Cal. Ct. App. 2023)).

¹⁰⁷ *Green Genie, Inc. v. City of Detroit*, 63 F.4th 521, 524 (6th Cir. 2023).

¹⁰⁸ Salkin, *supra* note 96, at 538.

¹⁰⁹ Bunting & Lammendola, *supra* note 98, at 278.

¹¹⁰ *FAQs Setbacks to Schools for Cannabis Businesses*, CITY OF SANTA ROSA PLANNING & ECONOMIC DEVELOPMENT, <https://www.srcity.org/DocumentCenter/View/24265/FAQs---Setbacks-to-Schools-for-Cannabis-Businesses> [<https://perma.cc/W7M8-BL7H>] (citing Charter of the City of Santa Rosa § 20-46.080(D)(2)).

¹¹¹ Cuyler Meade, *Denver to Issue New Cannabis Business Licenses but Not in Some Neighborhoods*, DENVER POST (May 12, 2021, 6:00 AM), <https://www.denverpost.com/2021/05/12/denver-new-cannabis-business-licenses> [<https://perma.cc/NWY2-LSKF>]. See Daniel R. Mandelker & Harrison Hartsough, *Spacing Requirements as a Land Use Strategy: The Marijuana Puzzle*, ZONING & PLAN. L. REP., Jan. 2023, at 1 (discussing generally spacing requirements for marijuana dispensaries).

¹¹² Bunting & Lammendola, *supra* note 98, at 278–79.

¹¹³ *Id.*

image,”¹¹⁴ placing limits on the number of available licenses—either by the state or the locality—can cause inflation of the value of the permits and increased entrance costs, which can result in social inequity and a lack of diversity in the market, which will be discussed in more detail in the next Part.¹¹⁵ This is true regarding any limitation placed on the licenses. Increased regulation can result in increased entry costs and decreased diversity of the applicants.

IV. LACK OF EQUITY IN CANNABIS BUSINESS

As noted by Jose Garcia-Fuerte and Professor William Garriott, like the historical gold rush, the “Green Rush” has created vast opportunities for entrepreneurship within the cannabis market.¹¹⁶ However, this rapid expansion has not been without its drawbacks, particularly in exacerbating existing social and racial inequities.¹¹⁷ The primary beneficiaries of legalization have often been affluent and white individuals—groups traditionally less affected by cannabis prohibition—while communities that suffered the most under the War on Drugs, notably poor and minority communities, have been left behind.¹¹⁸ Further, high rates of marijuana possession arrests continue, with Black individuals still facing disproportionate targeting, echoing the biases of past enforcement.¹¹⁹ All the while, the legal cannabis industry sees a pronounced overrepresentation of white ownership, indicating that the wealth and control of the industry are concentrated in the hands of those historically least likely to suffer from drug-related criminalization.¹²⁰

A recent report published by the Minority Cannabis Business Association (MCBA) further outlines the social inequities associated with the industry.¹²¹ MCBA defines “equity” as having characteristics of

¹¹⁴ Katherine Nesse & Colin Victory, *Regulation of Recreational Marijuana in Small Cities and Counties in Colorado* 11 (Seattle Pac. U., Working Paper No. 122, 2016), <https://digitalcommons.spu.edu/cgi/viewcontent.cgi?article=1122&context=works> [<https://perma.cc/DYM2-V9JK>].

¹¹⁵ MINORITY CANNABIS BUS. ASS’N., *supra* note 11, at 21 (“Of the 36 legal cannabis states, 27, including nine of the 15 states with social equity programs, have state-level license caps that limit the number of the licenses issued within the state either for medical or adult-use or both.”).

¹¹⁶ Jose Garcia-Fuerte & William Garriott, *Greening the Green Rush: How Addressing the Environmental Impact of Cannabis Legalization Can Enhance Social Equity and Remediate the Harms of the War on Drugs*, 53 ENV’T L. 169, 169 (2023).

¹¹⁷ *Id.* at 169–70.

¹¹⁸ *Id.* at 171–73.

¹¹⁹ William Garriott & Jose Garcia-Fuerte, *The Social Equity Paradigm: The Quest for Justice in Cannabis Legalization*, 47 SETON HALL LEGIS. J. 129, 135–37 (2023).

¹²⁰ *Id.* at 139–40.

¹²¹ MINORITY CANNABIS BUS. ASS’N., *supra* note 11.

fairness and equal treatment, among other things.¹²² “Social equity” in the cannabis industry is defined as encompassing four “pillars” that address the “breadth of the restorative policies necessary to adequately address the harms of cannabis prohibition on impacted communities and create an equitable and just cannabis industry.”¹²³ Two of the four pillars are apposite here:

1. Equitable industry promotes the inclusion and success of minorities in the cannabis industry through equal access to opportunities and resources.
2. Equitable communities empower and support the communities most impacted by the War on Drugs through community reinvestment, corporate responsibility initiatives, and social programing.¹²⁴

According to the report, thirteen of the eighteen recreational use states have social equity programs, which can seem impressive at first glance; however, “not one has resulted in an equitable cannabis industry across all four pillars of equity (industry, justice, community, and access).”¹²⁵ One continued barrier is funding. Researchers found that entry costs for the cannabis industry are steep,¹²⁶ and funding is limited

¹²² *Id.* at 2.

¹²³ *Id.*

¹²⁴ The other two pillars are “[e]quitable justice reduces arrests and imprisonment for non-violent cannabis offenses and restores basic rights of citizenship to individuals with non-violent cannabis offenses” and “[e]quitable access ensures safe legal cannabis products are available to immigrants, veterans, seniors, and disabled persons without risk of loss of benefits or immigration status.” *Id.*

¹²⁵ *Id.* at 3. This is illustrated by statistics in Maryland, which has attempted to diversify through its legislation, but has so far failed:

Maryland passed the Natali M. Laprade Act in 2014, which required diversity in its medical license applicant evaluations. However, of the first 15 grower licenses awarded, none went to Black-owned businesses despite one in three state residents being Black. In 2018, to increase minority involvement in Maryland’s medical program, the state legislature passed the Natalie M. Laprade Medical Cannabis Commission Reform Act, which created four additional grow licenses and 10 additional process licenses. This round of licenses required that 15% of applicants’ scores reflect the racial and gender diversity of the business owners and employees. Additionally, to receive points for diversity, applicants needed to demonstrate that 51% of ownership interest in their company was held by a woman, minority, or those living in economically disadvantaged areas. The initiative was met with numerous legal challenges. Currently, in Maryland, only four of the 26 companies with grower licenses are majority-owned by a woman or person of color.”

Id. at 9.

¹²⁶ *Id.* at 17. Licensing fees alone can be anywhere between \$1,381 (in Washington) to \$200,000 (in Georgia). *Id.*

due to cannabis's federally illegal status.¹²⁷ Banks and lending institutions refuse to offer loans or financing options for the cannabis industry, which leaves many business owners relying on cash to finance operations.¹²⁸ Coupled with the fact that the “average Black and Hispanic or Latino households earn about half as much as the average White household with just 15 to 20 percent of the net wealth,”¹²⁹ the lack of capital—particularly liquid assets—is a significant barrier. In addition, sixteen states require hopeful licensees to show “proof of capital” from \$100,000 (in Utah) to \$2,000,000 (in Connecticut, Georgia, and Pennsylvania).¹³⁰

While the MCBA report does not specifically address the cost of licensing when additional environmental or energy provisions are put into place, no doubt any added regulations will increase costs of entry. As noted earlier, Genevieve Byrne, Professor of Law and Staff Attorney for the Farm and Energy Initiative at Vermont Law and Graduate School, recently published a study entitled “Energy and Equity in Cannabis Cultivation,” in which she discusses implications of social and energy inequities with increased regulation of energy and environmental externalities in the indoor cannabis cultivation industry.¹³¹ She notes that some states and local jurisdictions are or are considering enhancing regulations to require energy efficiency and renewable energy consumption, which will likely create increased entry and operation costs.¹³² As a result, the same individuals who face the highest entry burden are those who have historically been “heavily burdened by the harms of fossil fuel generation and sky-high energy costs.”¹³³ And now, these same communities are being burdened with the pollution and negative environmental externalities of indoor cannabis grows without sufficient avenues to access the fruits of their profit.

This disparity underscores the urgent need for policy reforms to foster racial and economic equity, ensuring that legalization does not perpetuate the injustices it aimed to rectify but instead offers a more inclusive and fair landscape for all participants. The following Part calls for an integration of environmental justice and social equity into the cannabis regulation framework to ensure those who have been

¹²⁷ *Id.* at 16.

¹²⁸ *Id.* at 16.

¹²⁹ *Id.*

¹³⁰ *Id.* at 24. “Proof of capital” refers to proof that an applicant is financially prepared to incur the cost of operating a compliant cannabis business. *Id.*

¹³¹ Byrne, *supra* note 10.

¹³² *Id.* at 9.

¹³³ Alice Kaswan & Shalanda H. Baker, *From Rhetoric to Reality: Achieving Climate Justice*, HILL (Jan. 4, 2021, 4:30 PM), <https://thehill.com/opinion/energy-environment/532379-from-rhetoric-to-reality-achieving-climate-justice> [<https://perma.cc/WU3M-4USN>].

disproportionately harmed by cannabis prohibition can also share in the benefits of its legalization.

V. AN INTEGRATED APPROACH TO LESSEN THE ENVIRONMENTAL HARMS OF, AND HEIGHTEN ACCESS TO THE BENEFITS OF, THE MARIJUANA INDUSTRY

The issues presented in this Article are multipronged. First, regardless of its location, indoor marijuana cultivation is bad for the environment and climate.¹³⁴ It is highly energy intensive, emits GHGs from consumption of fossil fuel electricity sources, creates a biological and chemical hazard, and pollutes the air, land, and water unless it is highly controlled through state and local environmental measures. Second, a trend has emerged to allow these facilities to be sited in historically disadvantaged environmental justice communities where property is less expensive and neighbors are less likely to protest. Third, these host communities tend to be low-income communities where families already pay a higher percentage of their income to meet their energy needs (while consuming less than other communities). Fourth, given the capital-intensive nature of the marijuana industry, many of those living in the host communities lack access to the benefits of owning or operating a marijuana facility. In short, host communities bear much of the burden of indoor grows, without reaping a financial benefit.

A multipronged problem deserves an integrated multipronged solution: First, all cannabis grows should be moved outdoors. Second, if grows are not moved outdoors, state and local licensing schemes need to include additional consideration for limiting their environmental externalities. Third, host communities should play a bigger part in the decision-making process and receive the financial benefits of large commercial indoor grows.

A. *Take it Outside!*

As my mom would say, “take it outside, people!” I’ve discussed in previous Articles¹³⁵ the seemingly most ideal scenario to reduce the

¹³⁴ See Gina S. Warren, *Hotboxing the Polar Bear: The Energy and Climate Impacts of Indoor Marijuana Cultivation*, 101 B.U. L. REV. 979, 982 (2021); Gina S. Warren, *Regulating Pot to Save the Polar Bear: Energy and Climate Impacts of the Marijuana Industry*, 40 COLUM. J. ENV'T L. 385, 386 (2015).

¹³⁵ *Id.*

negative impacts of indoor cultivation: to require cannabis to be grown outdoors like other agricultural products. While it is unclear whether moving cultivation outdoors would reduce financial barriers of entry,¹³⁶ it would at least minimize the climate, energy, and environmental hazards to host communities.¹³⁷

As noted in this Article, indoor grows make up between 54–80% of cannabis cultivation.¹³⁸ This is because most states have historically banned or highly restricted outdoor grows due to concerns with security and crime. For example, in Illinois, all commercial cultivation must be in an “enclosed, locked facility,” which is defined to include a “room, greenhouse, building, or other enclosed area equipped with locks or other security devices that permit access only by cannabis business establishment agents working for the licensed cannabis business establishment.”¹³⁹ Further, some states do not prohibit outdoor grows, but they allow local governments to ban it instead: municipalities and local governments in California,¹⁴⁰ Michigan,¹⁴¹ and Alaska¹⁴² (to name a few) are allowed to restrict outdoor grows or ban them altogether. As marijuana becomes more socially acceptable and mainstream, jurisdictions should recognize that it does not need to be hidden away under lock and key, but can be regulated like any other agricultural product—outdoors.

B. Evaluate the Environmental Justice Impacts of Indoor Grows.

State licensing schemes should include mandates for environmental justice reviews prior to issuance of licenses to operate indoor commercial cannabis cultivator operations. As discussed *supra*, only a handful of

¹³⁶ The per pound cost of producing dried cannabis indoors is 220% of the cost of growing outdoors. See *Median Average Cost to Grow a Pound of Dried Cannabis Flower in the United States in 2021, by Cultivation Type*, STATISTA, <https://www.statista.com/statistics/1126903/production-costs-of-cannabis-cultivation-us> [<https://perma.cc/WWM2-HJKM>].

¹³⁷ See generally Jessica Owley, *Unforeseen Land Uses: The Effect of Marijuana Legalization on Land Conservation Programs*, 51 U.C. DAVIS L. REV. 1673 (2018) (discussing the issues of outdoor marijuana and its effect on land conservation and rural communities).

¹³⁸ CANNABIS BUS. TIMES, STATE OF THE CANNABIS CULTIVATION INDUSTRY REPORT S6 (2021), <https://giecdn.blob.core.windows.net/fileuploads/document/2021/06/02/soi%202021.pdf> [<https://perma.cc/82K2-YNWV>]; Evan Mills, *Environmental Justice, Up in Smoke*, SLATE (Apr. 6, 2023, 5:40 AM), <https://slate.com/technology/2023/04/indoor-cannabis-cultivation-environmental-risks-oakland.html> [<https://perma.cc/J83W-PQ5H>].

¹³⁹ 410 ILL. COMP. STAT. 705/20-30(c) (2023); 410 ILL. COMP. STAT. 705/1-10 (2023).

¹⁴⁰ Cal. Health & Safety Code § 11362.2(b)(3) (2023).

¹⁴¹ MICH. ADMIN. CODE R. 420.206(1)(b) (2022); MICH. COMP. LAWS ANN. § 333.27959 (West 2018); MICH. COMP. LAWS ANN. § 333.27956 (West 2018).

¹⁴² ALASKA STAT. ANN. § 17.38.210(a) (West 2015).

states currently require environmental review, let alone environmental justice review. However, as states begin to see the full consequences of unfettered indoor cannabis growing, it is anticipated that they will include more environmental and energy requirements in their licensing requirements, as well as considerations for how those environmental and energy harms disproportionately impact already marginalized communities. These “disparities in wealth and power, often inscribed and re-inscribed through social processes of racialization, are understood to produce disparities in environmental burdens.”¹⁴³ Environmental justice regimes work to give some of that power back.

Executive Order 12898, signed by President Bill Clinton on February 11, 1994, directed federal agencies to address environmental justice.¹⁴⁴ Specifically, agencies were instructed to identify and address “disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.”¹⁴⁵ The lead agency in charge of environmental protection, the Federal Environmental Protection Agency, defines environmental justice as “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment.”¹⁴⁶ The purpose of environmental justice is two-fold: first, it provides an avenue for historically underrepresented communities to have a voice (“meaningful involvement”) in the planning and decision-making process; second, it seeks fairness (“fair treatment”) in the outcome so that one community or group of people is not disproportionately burdened by adverse environmental effects of the agency’s determination.¹⁴⁷

¹⁴³ Dayna Nadine Scott & Adrian A. Smith, “Sacrifice Zones” in the Green Energy Economy: *Toward an Environmental Justice Framework*, 62 MCGILL L.J. 861, 863 (2017).

¹⁴⁴ See Exec. Order 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

¹⁴⁵ *Id.*

¹⁴⁶ *Learn About Environmental Justice*, ENV’T. PROTECTION AGENCY, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice#EjatEPA> [https://perma.cc/JFN6-M8U7].

¹⁴⁷ Lauren Bachtel, Kerry McGrath, Andrew Turner & John Bobka, *Navigating Environmental Justice Issues in Federal Permitting* NAT. RES. & ENV’T., Fall 2021, at 1, 4; see also Patricia E. Salkin, *Commentary, Intersection Between Environmental Justice and Land Use Planning*, 58(5) PLANNING & ENV’T L., May 2006, at 1, 3, 4 (“One way around the barriers preventing consideration of environmental justice concerns in local decisions is to make certain that local officials provide traditionally underrepresented populations with a meaningful role in the future development of their neighborhoods and communities through active citizen participation in the development of comprehensive land use plans.”); see also James M. Van Nostrand, *Energy and Environmental Justice: How States can Integrate Environmental Justice into Energy-Related Proceedings*, 61 CATH.

Executive Order 12898 was directed to federal agencies; however, several states have followed suit and enacted environmental justice legislation.¹⁴⁸ Some recent examples include:

- New Jersey SB 232 (2020):¹⁴⁹ Requires the Department of Environmental Protection to evaluate the environmental and public health impacts of certain facilities, such as gas-fired power plants, wastewater treatment plants, and landfills, and deny a permit if analysis determines that a new facility will have a disproportionately negative impact on the surrounding community.
- Massachusetts SB 9 (2021):¹⁵⁰ Specifies that for projects that impact air quality, an environmental impact report is required if the project is located within five miles of an environmental justice population (i.e., a neighborhood that meets one or more criteria outlined in the bill).
- Rhode Island HB 5923 (2021):¹⁵¹ Prohibits new high-heat medical waste processing facilities if they are in environmentally sensitive areas, including those with a high percentage of low-income or minority residents.
- New York¹⁵² SB 8830 (2022):¹⁵³ Addresses equitable siting of environmental facilities and requires environmental impact statements to determine whether the siting of a facility will cause or increase a disproportionate burden on disadvantaged communities.¹⁵⁴

Likewise, multiple local jurisdictions have enacted environmental justice policies. A 2019 report provides a comprehensive report on

U. L. REV. 701, 705 (2012) (concluding “engaging environmental-justice stakeholders in relevant proceedings—with engagement requiring the state’s devotion of adequate resources to lessen stakeholders’ financial barriers to participation—is essential to ameliorating environmental-justice disparities”).

¹⁴⁸ See *State and Federal Environmental Justice Efforts*, NAT’L CONF. STATE LEGIS., (May 26, 2023), <https://www.ncsl.org/environment-and-natural-resources/state-and-federal-environmental-justice-efforts> [https://perma.cc/D9X8-XQRX].

¹⁴⁹ N.J. STAT. ANN. § 13:1D-160 (West 2020).

¹⁵⁰ S. 9, 192nd Sess., 2021 Mass. Legis. Serv. Ch. 8 (West).

¹⁵¹ H.B. 5923, 2021 Gen. Assemb., Reg. Sess. (RI. 2021)

¹⁵² New York also has a cannabis social justice policy. Mathew R. Swinburne, *Social Justice Policies in New York’s Cannabis Legalization*, NETWORK FOR PUB. HEALTH L. (Oct. 20, 2021), <https://www.networkforphl.org/news-insights/social-justice-policies-in-new-yorks-cannabis-legalization/> [https://perma.cc/QGF9-HYBB].

¹⁵³ S. 8830, 2021-2022 Leg. Sess., 2022 N.Y. Laws ch. 840.

¹⁵⁴ NAT’L CONF. STATE LEGIS., *supra* note 148.

policies in twenty-three cities,¹⁵⁵ noting that “[m]unicipalities are often at the epicenter of fierce land use conflicts that pit low-income communities and communities of color against polluting industries and the agencies that permit them.”¹⁵⁶ Several of these cities (Chicago, Portland, Oakland, Seattle, Baltimore) have identified fossil fuel infrastructure as specifically hazardous and have banned their storage and infrastructure expansion.¹⁵⁷ Others (San Francisco, Cincinnati, Camden, Newark, Boston University, New York City) have taken a more general approach requiring those seeking any commercial or industrial permit to first provide environmental reviews, assessments, or complete checklists.¹⁵⁸

It is not unusual to see state and local environmental justice requirements for permitting and licensing of polluting projects within their jurisdiction. More thoughtful siting of indoor marijuana cultivation facilities is warranted due to the high level of environmental hazards associated with the grows. Including environmental justice considerations in the permitting scheme would help to ensure that communities are treated fairly and have meaningful involvement in the process.

C. *Mandate Community Benefits Agreements Between Large Commercial Growers and Host Communities*¹⁵⁹

Another way to promote fair treatment and meaningful involvement is to require growers, or at least large commercial growers,¹⁶⁰ to enter into community benefits agreements with host communities prior to issuance of operation permits.¹⁶¹ A community benefits

¹⁵⁵ See generally TISHMAN ENVIRONMENT AND DESIGN CENTER, LOCAL POLICIES FOR ENVIRONMENTAL JUSTICE: A NATIONAL SCAN (2019), <https://www.nrdc.org/sites/default/files/local-policies-environmental-justice-national-scan-tishman-201902.pdf> [https://perma.cc/H3RP-AUCN]. Those cities included Seattle, Portland, Eugene, Oakland, Richmond, San Francisco, Los Angeles, Commerce, Huntington Park, National City, Denver, Erie, Austin, Minneapolis, Chicago, Detroit, Cincinnati, Newark, New York City, Camden, Baltimore and Washington D.C. *Id.*

¹⁵⁶ *Id.* at 8.

¹⁵⁷ *Id.* at 17.

¹⁵⁸ *Id.* at 19–20.

¹⁵⁹ Thanks to Professor Benjamin Varadi for alerting me to this idea and for your valuable input and discussing on this topic.

¹⁶⁰ Studies would need to be conducted to identify what it means to be a “large commercial grower.” That information is not readily available to me, but logic suggests that small mom and pop facilities of 1,000 square feet will likely have a significantly less environmental and social footprint than those facilities that can reach 100,000 square feet.

¹⁶¹ Liz Sablich, *Equitable Development Movement: A Progressive Response to the Urban Redevelopment Landscape Nationwide and in Washington, DC's Shaw Community*, 20 POLY

agreement is a legally enforceable contract between local community members and the developer seeking to commence land use activity within that community.¹⁶²

As noted in the MCBA study, several states have social equity programs; however, they have not been sufficient to equalize the playing field when it comes to access to the marijuana industry, and certainly are not enough to address the negative externalities of siting a facility in an environmental justice community. One opportunity to address economic, social, and environmental externalities is to mandate large commercial indoor growers to negotiate and enter into community benefit agreements with host communities prior to establishment. The only state that has taken steps in this direction is Massachusetts, which requires Marijuana Establishments¹⁶³ and host municipalities to enter into a Host Community Agreement prior to operation.¹⁶⁴

The Agreement is intended to set forth the duties and responsibilities of the applicant and the host municipality. During the negotiation process, municipalities are encouraged by the Commission to “carefully consider the impact of the particular Marijuana Establishment proposed for a community, as well as benefits it may bring to local revenue and employment.”¹⁶⁵ The Agreement can be tailored to the needs for the specific locality, but the Massachusetts Cannabis Control Commission lists a few items that “may” be addressed, including:

PERSP. 25, 29 (2013) (“Community benefits agreements ensure that development is equitable, benefits all members of the community, and contributes to a stronger local community with enhanced quality of life. In addition to supporting equitable outcomes, community benefits agreements also ensure the development process itself is more fair and inclusive than traditional market-driven growth by including residents in the process and treating the community as a valuable asset.”).

¹⁶² *Id.* (citing Vicki Been, *Community Benefits Agreements: A New Local Government Tool or Another Variation on the Exactions Theme?*, 77 U. CHI. L. REV. 5, 5–6 (2010)).

¹⁶³ Pursuant to the Massachusetts statute: “Marijuana Establishment means a Marijuana Cultivator (Indoor or Outdoor), Craft Marijuana Cooperative, Marijuana Product Manufacturer, Marijuana Microbusiness, Independent Testing Laboratory, Marijuana Retailer, Marijuana Transporter, Delivery Licensee, Marijuana Research Facility Licensee (as defined in 935 CMR 500.002: Marijuana Research Facility Licensee) Social Consumption Establishment (as defined in 935 CMR 500.002: Social Consumption Establishment) or any other type of licensed Marijuana-related business, except a Medical Marijuana Treatment Center (MTC).” 935 MASS. CODE REGS. 500.002 (2023).

¹⁶⁴ *Host Community Agreement for a Marijuana Establishment*, CANNABIS INDUS. L., <https://www.cannabisindustrylawyer.com/host-community-agreement-for-a-marijuana-establishment> [<https://perma.cc/AH2Q-UMZX>]; see also *Host Community Agreements*, COMMONWEALTH OF MASS. CANNABIS CONTROL COMM’N, <https://masscannabiscontrol.com/host-community-agreement/> [<https://perma.cc/WT49-TXBW>].

¹⁶⁵ *Host Community Agreements*, *supra* note 164.

- A provision that the ME or MTC must make jobs available to residents of the municipality. While residency may be one of several positive factors in recruitment, it should not prevent the ME or MTC from hiring the most qualified candidates or hinder compliance with Massachusetts Anti-Discrimination and Employment Laws;
- Terms for the ME or MTC to provide paid police detail for the purposes of traffic and crowd management during peak hours of operation;
- Identify the type of security system required for controlling access to areas in which Marijuana or Marijuana Products are kept. Possible methods include a keypad or electronic access card system;
- Include the steps that an ME or MTC must take if it wishes to relocate within the municipality;
- Include stipulations if the ME or MTC wishes to terminate the agreement with the municipality;
- Outline details of how the ME or MTC will assist with community support, public outreach, and employee outreach programs; and
- Identify how the ME or MTC will work with the municipality to provide municipal-sponsored educational programs.¹⁶⁶

In addition to the Agreement terms, municipalities can impose a 3% local tax for adult use sales,¹⁶⁷ and can include a five-year “community impact fee” of up to 3% of gross annual sales.¹⁶⁸ The fees must be “reasonably related” to cover costs associated with the marijuana operation, but they should not be relied upon to generate revenue.¹⁶⁹ Again, the Commission lists a few types of costs that could be included (but they are not limited to):

- Municipal inspection costs;
- Traffic intersection design studies;
- Public safety personnel overtime costs;

¹⁶⁶ Host Community Agreements, *supra* note 164.

¹⁶⁷ *Id.*

¹⁶⁸ CANNABIS CONTROL COMM’N, GUIDANCE ON HOST COMMUNITY AGREEMENTS 8 (Feb. 2024) <https://masscannabiscontrol.com/wp-content/uploads/2022/01/Guidance-on-Host-Community-Agreements.pdf> [<https://perma.cc/FC5Y-PNHH>]; see also *Host Community Agreements*, *supra* note 164.

¹⁶⁹ See *Host Community Agreement for a Marijuana Establishment*, *supra* note 164.

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- Environmental impact studies; and
- Substance abuse prevention programming.¹⁷⁰

While Massachusetts' regulations are commendable and certainly a move in the right direction, the Agreement provisions are not enough to fully address the concerns set forth in this Article. First, the Agreement is between the applicant and the host municipality. The host community is not a party to the Agreement. This means that the community is not involved in the decision-making process, and it does not specifically receive any direct social or financial benefits from its execution. Second, the Agreement may include provisions for "community support, public outreach, and employee outreach programs" but these are not mandatory and do not include an avenue for input from the host community on these programs.¹⁷¹ Third, it does not mandate environmental assessments for indoor cultivators. Municipalities can include it in the Agreement, but it is not a mandatory provision. The following outlines some considerations for moving toward more equitable Host Community Agreements.

1. Host Communities Must be a Party to the Host Agreement

"[W]hen the communities these programs seek to serve are left out of the decision-making, the cycle of exclusion remains unbroken."¹⁷² This statement was made by Dianna Benjamin writing for Marijuana Matters, discussing the need for community benefits agreements in the cannabis industry. Social equity starts with the inclusion of communities that have or will bear the industry brunt.¹⁷³ "In a typical community benefits agreement, *community members* agree to support proposed projects conditional on the developer providing benefits such as assurances of

¹⁷⁰ *Host Community Agreement for a Marijuana Establishment*, *supra* note 164. Local tax is in addition to the state's already mandatory 6.25% sales tax and 10.75% excise tax. *Id.*

¹⁷¹ *Id.*

¹⁷² Dianna Benjamin, *Community Benefit Agreements in the Cannabis Industry*, MARIJUANA MATTERS, <https://marijuanamatters.org/greenlightblog/community-benefits-agreements-in-the-cannabis-industry> [<https://perma.cc/K82C-PBG4>].

¹⁷³ One area of concern with community benefits agreements is the need to define the impacted community—whether the impacted community is defined based on geographic location or membership within a designated group—to ensure that those actually impacted and harmed by the activities are fairly benefited by the agreement. While beyond the scope of this article's discussion (which addresses environmental justice communities generally) one way to address this issue is to create (or utilize an existing) cannabis coalition to assist in securing rights for impacted community members. Shira Shoenberg, *Bribery Case Against Fall River Mayor Jasiel Correia Puts Renewed Scrutiny on Massachusetts Marijuana Laws*, MASS LIVE (Sept. 9, 2019, 10:16 PM), <https://www.masslive.com/news/2019/09/bribery-case-against-fall-river-mayor-jasiel-correia-puts-renewed-scrutiny-on-massachusetts-marijuana-laws.html> [<https://perma.cc/68VU-Q4GS>].

local jobs, affordable housing, and environmental improvements.”¹⁷⁴ Municipalities can be parties to the agreements, but not to the exclusion of communities.

Another concern with excluding the community from negotiations is the potential conflict with the municipality’s triple roles in licensing, taxing, and ensuring social and environmental compliance. When the entity in charge of ensuring compliance with social and environmental regulations is the same as the entity receiving the benefit of taxes and impact fees, it can result in a conflict of interest. This conflict could lead to lackluster compliance and less than robust community benefit, or worse. The “or worse” part includes potential corruption and misuse of power by government officials. For example, in 2019, the former mayor of Fall River, Massachusetts was arrested on bribery allegations for allegedly taking \$600,000 in exchange for political support for cannabis licensing.¹⁷⁵ The hope is that this example is an anomaly; however, with the level of financial gain that is possible in the cannabis industry, more safeguards should be put into place to avert even the appearance of impropriety with licensing and compliance. Dr. Mills points out a potential concern even with state management of environmental compliance for cannabis grows due to the large amount of profit made from tax revenues and licensing fees for cannabis growers.¹⁷⁶ According to Dr. Mills, in 2021, California received \$1.3 billion, Colorado received \$423 million, and Illinois received \$317 million in tax revenues, respectively.¹⁷⁷ Stronger regulatory measures and greater local community involvement and control could help to moderate complete governmental control and lessen concerns of misuse of political power.¹⁷⁸

2. The Host Agreement Must Include Social and Financial Benefits to the Impacted Community

An important purpose of community benefits agreements is to provide economic benefit to individuals living in communities who are

¹⁷⁴ Sablich, *supra* note 161, at 29.

¹⁷⁵ Shoenberg, *supra* note 173; see also Michael N. Widener, *The New Localism and Marijuana Law: Land Use Entitlements Black-Ops Vigilance*, 48 REAL EST. REV. 1, 5 (2019) (discussing concerns with *ex parte* contact between marijuana lobbying groups and zoning boards, and how local communities can “guard against ‘professional opposition’ undermining the public’s perception of a fair hearing environment”).

¹⁷⁶ Mills, *supra* note 21 (discussing the environmental injustices associated with commercial cannabis growers in California).

¹⁷⁷ *Id.*

¹⁷⁸ Benjamin, *supra* note 172.

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bearing the burden of hosting the enterprise.¹⁷⁹ The Massachusetts host agreement allows municipalities to negotiate and include provisions that would “make jobs available to the residents of the municipality,”¹⁸⁰ but even such a provision does not address the disproportionate nature of indoor grow sites. If, for example, the facility is in a low-income, majority-minority neighborhood, but the “jobs available” go to nonminority middle- to upper-income individuals from a nonminority neighborhood, the “make jobs available” mandate has very little restorative value for those living in the host community.

In March 2020, a community benefits agreement was entered between a Chicago cannabis operator and the Cannabis Equity Illinois Coalition.¹⁸¹ It was touted as the first of its kind, and it illustrates how an agreement could be framed to provide direct benefits to the community and not to the municipality as a whole. In the Chicago-based Agreement, the operator agreed to multiple financial requirements, including:

- Provide 100% living wage jobs for disproportionately impacted individuals;
- Hire 75% of employees from disproportionately impacted areas (“DIAs”) within two years;
- Donate 10% of net profits of the dispensary to community organizations working in DIAs; and
- Contract 10% of products and services from minority and social equity businesses.¹⁸²

The information as to the agreement’s success in hiring and profit sharing is not readily available; however, with proper enforcement and compliance language in the agreement, the parties would have an avenue for seeking remedies. Regardless, these financial provisions provide a good example of a provision that could directly benefit the host

¹⁷⁹ *Community Benefit Agreements*, POLICYLINK, <https://www.policylink.org/resources-tools/tools/all-in-cities/good-jobs/community-benefits-agreements> [https://perma.cc/8BK3-KX9K].

¹⁸⁰ *Host Community Agreement for a Marijuana Establishment*, CANNABIS INDUS. LAW., <https://www.cannabisindustrylawyer.com/host-community-agreement-for-a-marijuana-establishment> [https://perma.cc/W8UH-TUGN].

¹⁸¹ *Cannabis Equity Illinois Coalition Signs First-In-the-Nation Community Benefits Agreement with Illinois Cannabis Operator Nature Cares Company*, CHICAGO LAWS.’ COMM. FOR C.R. (Mar. 3, 2020), <https://www.clccrul.org/blog/cannabis-equity-illinois-coalition-signs-first-in-the-nation-community-benefits-agreement-with-illinois-cannabis-operator-natures-care-company> [https://perma.cc/L2MX-P4U7].

¹⁸² *Id.*

community and not just go into a generic fund set up by the municipality for “community programs.”¹⁸³

3. The Host Agreement Must Include Mandatory Environmental Assessments

It goes without saying at this point in the Article that any permitting scheme or binding agreement should include an environmental assessment. Given what is currently understood about the environmental hazards of indoor cannabis cultivation, it is hard to believe that any facility of measurable commercial value would not have a negative impact on the environment and surrounding community. In addition to an initial environmental assessment, community benefits agreements should include continuing obligations for environmental and energy controls for the life of the facility, as well as an enforcement mechanism to ensure compliance beyond just fines or fees.

Host agreements should also include more localized benefits to offset GHG release and reduce energy impact by installing green space. Economically disadvantaged communities, often identical to environmental justice communities, suffer a lack of urban green space¹⁸⁴—a complaint raised in the California lawsuit discussed in Part II.B.¹⁸⁵ If indoor cultivation facilities site in these communities, they can do more than just prevent environmental harm. Beyond beautification, installing new green space provides heat remediation by removing heat-trapping materials, introducing native plants to shade the soil, and incorporating shade-trees. While the community may not benefit financially from ownership, localized heat reduction leads to lower energy costs.¹⁸⁶ Additionally, planning green spaces with a carbon-conscious mindset can counter the GHG emissions produced by the indoor growth facility’s

¹⁸³ Another example of how this could work is from SOMA Action’s Racial Justice-Cannabis Equity Initiative in New Jersey, which has been working with South Orange’s Cannabis Task Force and the NAACP Oranges & Maplewood to come up with a proposed community benefit agreement model. It has recommended that cannabis operators employ 25% of their workers from “one or more of the following criteria: has a prior cannabis conviction, is a member of an impacted family (which means that an immediate family member has had a cannabis conviction), is low-income, or is a current or past resident of an impact zone.” *A Guide to Local Cannabis Equity*, SOMA ACTION, <https://www.somaaction.org/blog/a-guide-to-local-cannabis-equity> [https://perma.cc/MM82-5Z7T].

¹⁸⁴ Jeremy S. Hoffman, Vivek Shandas & Nicholas Pendleton, *The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas*, 8 CLIMATE 1, 10 (2020).

¹⁸⁵ Complaint for Injunctive Relief, *Environmental Democracy Project v. Area51Zero LLC*, No. 22-cv-4761, 2022 WL 3574123 (N.D. Cal. Aug. 18, 2022).

¹⁸⁶ See Hoffman, Shandas & Pendleton, *supra* note 184, at 11.

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energy consumption and local release, even if small compared to the vast amounts of GHG produced by the facilities.

CONCLUSION

The legalization and consequent reliance on indoor cultivation of marijuana have burgeoned into a significant social and environmental issue. In nearly half the states, cultivation of the once-illicit plant is now a booming business, with an expected market value surge from \$68 billion in 2022 to an estimated \$100 billion by 2030. This rapid growth, however, has not been without consequence, particularly for marginalized communities that find themselves at the intersection of environmental hazards and social inequities.

This Article has explored the disproportionate environmental impact of indoor cannabis cultivation on communities of color and low-income families. The reliance on energy-intensive cultivation methods, the siting of facilities in disadvantaged neighborhoods, and the subsequent exposure to pollutants from these operations underscore new facets of inequities in the cannabis industry within equitable distribution of environmental harms and inequitable barriers to accessing the financial gains of the industry. As we have seen, the industry's capital-intensive nature and the systemic hurdles in licensing have left non-white ownership at a mere 12–15% in 2022, amplifying the call for equitable participation.

This Article has dissected the negative externalities associated with indoor cultivation, from grid vulnerability to blackouts and increased greenhouse gas emissions. These concerns are not isolated to the environment alone but extend to the social fabric of the host communities. The presence of large-scale cultivators exacerbates existing challenges, stymies social investment, and reinforces stigmas.

In addressing these issues, the Article posits a two-pronged approach: First, a recommendation for enhanced state environmental reviews that integrate an environmental justice analysis, ensuring that facilities are not disproportionately located in marginalized communities. This includes a demand for rigorous environmental assessments and a commitment to energy justice. Second, it calls for the mandatory adoption of community benefit agreements between cultivators and host communities, paving the way for community ownership, involvement, decision-making, and access to the industry's economic benefits.

Without decisive action from states, the legacy of environmental and social disparities will persist in the shadow of the cannabis industry's growth. This Article urges for policies that protect the most vulnerable, promote equity, and ensure that the green wave of cannabis legalization

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does not leave behind a trail of environmental degradation and social injustice.