Note

Power to the People: Distributing the Benefits of a Clean Energy Transition Through Equitable Policy, Legislation, and Energy Justice Initiatives

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INTRODUCTION

As the United States attempts to combat climate change and transition to an electric grid that is increasingly powered by renewable energy sources,[1] many communities will experience the benefit of decreased air pollutant from the reduced burning of fossil fuels and the economic opportunities that will accompany such an extensive transition.[2] As the U.S. renewable energy sector expands, the move

∗ Articles Editor, *Minnesota Law Review*, Volume 106. Many thanks to Professor Alexandra Klass for her help in developing the topic of this Note, her guidance during the writing process, and her mentorship throughout law school. I also want to thank the editors of *Minnesota Law Review* who gave me both patience and helpful feedback, and the friends who made law school more bearable. Finally, I owe the deepest gratitude to Zack for his support and incredible patience, and to my parents for their constant love and unwavering belief in me.

1. There are various, sometimes competing, definitions of renewable energy sources, and this Note does not seek to endorse one concrete definition. Instead, terms such as "renewable" and "clean" are used to refer generally to non-fossil-fuel sources of energy generation that are virtually inexhaustible, and low or no emission. *See generally Clean Energy*, U.S. DEP'T ENERGY, https://www.energy.gov/clean-energy [https://perma.cc/6HU8-UTRC] (discussing solar, wind, water, geothermal, bioenergy, and nuclear energy resources); *Renewable Energy Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/renewable-sources [https://perma.cc/X7FM-ZALJ] (describing the U.S.'s current utilization of various "renewable" energy sources including biomass, hydropower, geothermal, wind, and solar); Lora Shinn, *Renewable Energy: The Clean Facts*, NRDC (June 15, 2018), https://www.nrdc.org/stories/renewable-energy-clean-facts [https://perma.cc/4L8N-ZQZH] (explaining the drawbacks of energy sources, like hydroelectric and biomass, that are not universally considered to be "renewable" and/or "clean").

2. Sanya Carley & David M. Konisky, *The Justice and Equity Implications of the Clean Energy Transition*, 5 NATURE ENERGY 569, 569 (2020); *see also* Shelley Welton & Joel B. Eisen, *Clean Energy Justice: Charting an Emerging Agenda*, 43 HARV. ENV'T L. REV. 307, 309–10 (2019).

away from fossil fuels could be especially meaningful for low-income and other marginalized communities for whom the health consequences of pollution reduction, and financial benefits of distributed energy resources,[3] could have a particularly significant impact.[4] However, not everyone is guaranteed to benefit equally from this transition unless access to such opportunities is open to all, and the burdens of the transition do not fall disproportionately on some.[5]

As we move forward under the new administration, both efforts to stimulate economic and social recovery amidst the ongoing COVID-19 pandemic and legislation aimed at addressing climate change present an opportunity to fund energy justice initiatives, but not if such plans focus narrowly on job creation and policies that disproportionately benefit more affluent communities.[6] Also problematic: if such plans overlook energy justice issues, and generally neglect to equitably distribute benefits to low-income and minority communities.[7] Without the right policies in place, the U.S. energy transition could actually promote environmental injustices, and further exacerbate the disproportionate negative impact the pandemic has had on economically and socially vulnerable populations. This situation presents a question about which approaches to energy transition have the greatest potential to reliably promote energy justice goals and decrease the disproportionate burden of climate change and environmental degradation on marginalized communities.

Many existing federal programs that promote energy transition have been criticized for failing to sufficiently address energy justice issues.[8] In response, some states have stepped in to develop their

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3. Off. Energy Efficiency & Renewable Energy, *Solar Integration: Distributed Energy Resources and Microgrids*, U.S. DEP'T ENERGY, https://www.energy.gov/eere/solar/solar-integration-distributed-energy-resources-and-microgrids [https://perma.cc/58HL-EDKW] (explaining that distributed energy resources and microgrids (like rooftop solar panels, and energy storage facilities) produce and supply electricity on a small scale at the local level).

4. *See infra* Part I.B.

5. Carley & Konisky, *supra* note 2, at 569.

6. *See* Daniel Raimi, *Jobs, Equity, and Efficiency: Reconciling Priorities in a Transition to a Clean Energy Economy*, RESOURCES (Oct. 22, 2020), https://www.resourcesmag.org/archives/jobs-equity-and-efficiency-reconciling-priorities-transition-clean-energy-economy [https://perma.cc/NL4V-FB8V] (explaining that broad-based policies targeting entire sectors, such as subsidies for rooftop solar, electric vehicle purchases, and certain energy efficiency programs, tend to disproportionately benefit high earners).

7. *See id.*

8. *See infra* Parts I.B and I.C; *see, e.g.*, Mary Finley-Brook & Erica L. Holloman,

own programs to address these matters,[9] while promoting sustainable development and renewable energy expansion.[10] These initiatives attempt to more equitably distribute the social and economic benefits of renewable energy expansion, like "green"[11] jobs, less polluted air, lower energy costs, and other technological innovations.[12]

Empowering Energy Justice, 213 INT'L J. ENV'T RSCH. & PUB. HEALTH 1, 4–5 (2016) (describing the shortcomings of various federal programs in resolving energy justice issues).

9. *See infra* Part II.

10. *See, e.g.*, Finley-Brook & Holloman *supra* note 8, at 9–11 (describing state and local government energy justice focused legislation); Carley & Konisky, *supra* note 1, at 573–74 (discussing policy and business interventions to ensure a just transition); Michael Sol Warren, *Landmark Bill to Protect Poor Communities from Pollution Just Passed N.J. Legislature*, NJ.COM (Aug. 28. 2020), https://www.nj.com/news/2020/08/landmark-bill-to-protect-poor-communities-from-pollution-just-passed-nj-legislature.html [https://perma.cc/7FGP-ADSB] (discussing a new environmental justice law in New Jersey); Arlene Karidis, *The Impact of New Jersey's New Environmental Justice Law*, WASTE360 (Oct. 14, 2020), https://www.waste360.com/legislation-regulation/impact-new-jerseys-new-environmental-justice-law [https://perma.cc/JM2J-5HP2] (explaining that the law gives the state explicit authority to deny permits—including for power generation facilities—in already overburdened communities); Andy Balaskovitz, *Michigan Environmental Justice Council to Take on Energy Access and Pollution*, ENERGY NEWS NETWORK (Feb. 10, 2020), https://energynews.us/2020/02/10/midwest/michigan-environmental-justice-council-to-take-on-energy-access-and-pollution [https://perma.cc/LJ7R-NWEL] (describing Michigan's new "Advisory Council for Environmental Justice" which was formed to address problems like air pollution from coal burning and oil refining, the Line 5 pipeline, and the lack of access to programs that reduce low-income customers' energy burden); Kari Lydersen, *In Illinois Energy Bill Negotiations, Equity Is Taking Center Stage*, ENERGY NEWS NETWORK (Oct. 27, 2020), https://ilcleanjobs.org/2020/10/27/in-illinois-energy-bill-negotiations-equity-is-taking-center-stage [https://perma.cc/792X-CEVW] (examining how Illinois's proposed Clean Energy Jobs Act would expand incentives for solar in low-income and energy justice communities, and expand solar job training and entrepreneurship opportunities).

11. The term "green" is used throughout this Note, along with terms like "clean," "sustainable," and "environmentally conscious," to refer to technologies, processes, goods, services, policies, etc. that are commonly understood to eliminate, substantially reduce, or minimize harm and/or impact upon ecosystems or the environment by minimizing the depletion of natural resources, decreasing pollution, reducing consumption, preventing waste, protecting human health, etc. *See, e.g.*, *About Green Engineering*, EPA, https://www.epa.gov/green-engineering/about-green-engineering#definition [https://perma.cc/FRH7-FAS2]; *The Green Streets, Green Jobs, Green Towns (G3) Initiative and Approach*, EPA, https://www.epa.gov/G3/green-streets-green-jobs-green-towns-g3-initiative-and-approach [https://perma.cc/7AX9-S2ZU]; *About the Green Power Partnership*, EPA, https://www.epa.gov/greenpower/about-green-power-partnership [https://perma.cc/6J2D-6B8J].

12. *See supra* note 10 and accompanying text.

Each of these policies and programs represents an opportunity to close the energy justice gap, and find lasting solutions to share the benefits of a cleaner and more sustainable energy system for all U.S. residents—not just those at the top.

Part I of this Note will examine the current understanding of energy justice issues specifically as it relates to the unfair distribution of the benefits and burdens of energy production and use. Additionally, this Part will explore the disproportionate impact of the negative externalities of the energy sector on marginalized communities, and the way in which these burdens have been exacerbated by the COVID-19 pandemic. Part II of this Note will examine several notable examples of state and local government actions that have been taken to address energy justice concerns and ensure that the benefits of renewable energy expansion reach those who are most vulnerable to the negative externalities of the energy sector. Finally, Part III discusses how such solutions could be built upon at both the local and federal levels to continue combating energy injustices while also meeting the goals of transitioning to renewable energy sources and promoting relief in the wake of the current economic crisis. This Note concludes by providing recommendations for how state and federal funding could be increased and allocated to better address environmental justice issues and discussing the feasibility of such solutions.

I. ISSUES AND INJUSTICES WITHIN THE TRADITIONAL ENERGY SYSTEM

This Part begins by explaining the history and significance of the term "energy justice," and the theoretical framework in which energy justice issues and proposed solutions are discussed and analyzed. After establishing the scope of the issue, this Part explores the disproportionate impact of the negative externalities of the energy sector on marginalized communities, the prevalence of energy poverty within these communities, and the sources of these inequities. It will further cover the reasons such disparities are problematic, especially in regard to the negative physical, social, and economic impact of energy injustices, and the ways in which a large-scale energy transition and the improper allocation of resources could fail to address, or even perpetuate, these issues.

A. THE ENERGY JUSTICE FRAMEWORK

The key components of energy justice can be traced back to the environmental justice movement of the 1980s, a race-based social movement that became a national protest for increased environmental protections and social equity.[13] However, the term "energy justice" is thought to have emerged as a policy term in the early 2000s.[14] Since then, scholars have explored the theory from household all the way to international levels.[15] Such studies have applied energy justice principles to many present energy concerns such as nuclear power generation, policy-making and regulation, climate change, household energy consumption, domestic and transportation services, energy poverty and vulnerability issues, and other ethical considerations.[16]

Energy justice principles call for a system that "equitably shares both the benefits and burdens involved in the production and consumption of energy services, as well as one that is fair in how it

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13. *See* Kirsten E.H. Jenkins, Shannon Spruit, Christine Milchram, Johanna Höffken & Behnam Taebi, *Synthesizing Value Sensitive Design, Responsible Research and Innovation, and Energy Justice: A Conceptual Review*, 69 ENERGY RSCH. & SOC. SCI. 1, 6 (2020) [hereinafter Jenkins et al., *Synthesizing Value*] (linking the emergence of the energy justice movement to race-based social movements around the siting of toxic facilities and key climate negotiations); Kirsten Jenkins, Darren McCauley & Alister Forman, *Energy Justice: A Policy Approach*, 105 ENERGY POL'Y 631, 631 (2017) [hereinafter Jenkins et al., *Energy Justice*] ("Although not explicitly termed as such, key aspects of energy justice theory and debates have been discussed, and in some cases, remedied, since around the 1980s."); John C. Dernbach, Patricia E. Salkin & Donald A. Brown, *Sustainability as a Means of Improving Environmental Justice*, 19 J. ENV'T & SUSTAINABILITY L. 1, 14–17 (2012) (writing that activists created a multiracial grassroots movement aimed at achieving environmental and social equality in response to "the setting of otherwise locally unwanted land uses such as hazardous waste facilities, landfills, and industrial uses in close proximity to communities of color"); Off. Legacy Mgmt., *Environmental Justice History*, U.S. DEP'T ENERGY, https://www.energy.gov/lm/services/environmental-justice/environmental-justice-history [https://perma.cc/CN6Y-TN4C] (tracing the start of the environmental justice movement to protests in a majority-Black community in North Carolina).

14. Jenkins et al., *Synthesizing Value*, *supra* note 13, at 6.

15. *See id.* at 6 ("[E]xtensive Energy Justice literature has developed, including applications at the household and community level, national and international scales."); Jenkins et al., *Energy Justice*, *supra* note 13, at 631 (referring to various peer-reviewed articles and edited books that have been published on energy justice issues).

16. *See* Jenkins et al., *Synthesizing Value*, *supra* note 13, at 6 (explaining that researchers have used various terms such as "'fuel poverty', 'energy vulnerability' and 'energy poverty' alongside 'energy precarity'" to describe issues that all fall under the umbrella of energy justice); Jenkins et al., *Energy Justice*, *supra* note 13, at 631.

treats people and communities in energy decision-making."[17] Energy justice encompasses the rights of all people to access energy services, the distribution of the social and environmental impacts of energy production, and the rights of communities to be informed and represented in the decision-making process.[18] At its core, energy justice seeks to provide all people access to "safe, affordable and sustainable energy."[19] In accomplishing these goals the energy justice framework can help researchers identify justice-related concerns within the energy system and more effective ways to address these problems. The energy justice framework can also act as a decision-making tool to aid energy planners, policy makers, and consumers in making more informed energy choices.[20]

The energy justice literature identifies three core tenets: distributional justice, procedural justice, and recognition justice.[21] Distributional justice describes the distribution of benefits and burdens and seeks to ensure that no portion of the population receives an unequal share of the negative externalities of the energy system, or is denied access to its benefits.[22] Procedural justice aims to ensure that energy decision-making processes are equitable, non-discriminatory, and include all stakeholders.[23] Lastly, recognition justice demands

17. Benjamin K. Sovacool & Michael H. Dworkin, *Energy Justice: Conceptual Insights and Practical Applications*, 142 APPLIED ENERGY 435, 441 (2015).

18. *Id.*

19. *See* Darren McCauley, Raphael J. Heffron, Hannes Stephan & Kirsten Jenkins, *Advancing Energy Justice: The Triumvirate of Tenets*. 3 INT'L ENERGY L. REV. 107, 107 (2013).

20. Jenkins et al., *Synthesizing Value*, *supra* note 13, at 6 (explaining that the energy justice framework encourages decision-makers to consider "local objectives and direct[] attention to how best to support such initiatives to further stimulate local action and deliver more widespread equity gains").

21. McCauley et al., *supra* note 19, at 107–10 (describing the three tenets which form the conceptual framework of energy justice).

22. *See, e.g.*, *id.* at 107 (arguing that "energy policy needs to address the 'the unequal distribution of ills' from decisions on infrastructure siting, (e.g. wind farms, nuclear waste facilities, etc.), subsidies (e.g. renewables, nuclear energy), pricing (e.g. fuel poverty) and consumption indicators (e.g. smart meters) within the context of global and local pressures"); Carley & Konisky, *supra* note 2, at 569–70 (explaining that the current energy system creates winners (who benefit from cleaner sources of energy, reduced emissions, employment opportunities, and innovation) and losers (who lack access to such opportunities and disproportionately bear the burden of production and consumption)); Welton & Eisen, *supra* note 2, at 316 (2019) ("[D]istributive justice . . . asks how the benefits and burdens of a policy or program should be shared among a community . . . .").

23. *See, e.g.*, McCauley et al., *supra* note 19, at 108 (arguing that equitable procedures require full stakeholder participation in the decision-making process, and full

that all stakeholders be fairly represented and offered respect and equal protection so that systemic disparities may be addressed.[24] Recognition justice advocates for a system that acknowledges "the divergent perspectives rooted in social, cultural, ethnic, racial and gender differences" that exist among these stakeholders.[25] Additionally, some scholars also include the tenet of restorative justice, which calls for energy decision-makers to correct the other three types of injustices through policy interventions.[26]

Altogether, a comprehensive energy justice decision-making framework aims to promote: availability, affordability, due process, good governance, sustainability, intergenerational and intragenerational equity, and responsibility.[27] The most fundamental of these

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transparency and information disclosure from governments and industry, like what subsidies different energy sources are receiving); Carley & Konisky, *supra* note 2, at 570 (explaining that procedural justice "seeks to ensure that energy procedures are fair, equitable and inclusive of all who choose to participate"); Welton & Eisen, *supra* note 2, at 316 ("[P]rocedural justice . . . focuses on the right to equal voice and representation during decisionmaking processes.").

24. *See, e.g.*, McCauley et al., *supra* note 19, at 108 (describing how "recognition" exceeds mere participation by affording equal respect, representation, and political rights to all stakeholders); Carley & Konisky, *supra* note 2, at 570 ("[R]ecognition justice requires an understanding of historic and ongoing inequalities, and proscribes efforts that seeks to reconcile [them.]"); Darren McCauley, Raphael Heffron, Ryan Holmes & Maria Pavlenko, *Energy Justice: A New Framework for Examining Arcticness in the Context of Energy Infrastructure Development*, *in* ARCTICNESS: POWER AND VOICE FROM THE NORTH 77, 79, 88 (Ilan Kelman ed., 2017) ("An adoption of recognition justice could shed light on under-recognised sections of society," and that in order to avoid narrowly focusing on "one form of inequality to the exclusion of others . . . energy justice research must diversify its understanding of where injustice can be found.").

25. McCauley et al., *supra* note 24, at 79.

26. Carley & Konisky, *supra* note 2, at 570 (explaining that proponents of the energy justice framework advocate for government or other interventions to correct the many injustices imbedded in the current energy system); Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 ENERGY POL'Y 658, 661 ("[I]f restorative justice were applied to the energy sector it would ensure that decision-making was made in light of considering the potential harm of that decision and consequently the true cost of that decision.").

27. Sovacool & Dworkin, *supra* note 17, at 439; Carley & Konisky, *supra* note 2, at 570. Due process aims to guarantee that all stakeholders are fairly involved in the decision-making process for energy projects that impact them and that judicial and administrative remedies are available to these individuals. Sovacool & Dworkin, *supra*, at 439. Good governance means that decision-makers must act with high levels of transparency to increase accountability and decrease corruption. *Id.*; *see* Carley & Konisky, *supra*, at 570. The element of sustainability imposes a duty on decision-makers to wisely use natural resources such that, "the demands placed upon the environment by people and commerce can be met without reducing the capacity of the

goals is availability, which encompasses the energy sector's ability to provide a reliable, sufficient, and accessible supply of energy through a robust and diversified energy system.[28] This element of energy justice includes both access to the physical resource itself (electricity, gasoline, heat, etc.) and to the technological innovations used to "produce, transport, conserve, store, or distribute energy."[29] Also inextricably tied to access is affordability, and ensuring that lower-income individuals need not spend a disproportionately larger share of their income on essential energy services than higher-income individuals.[30] Responsibility is similarly intertwined with the other objectives, representing the government's overarching duty to minimize the social and environmental harms of energy production, and protect its citizens from negative externalities while pursuing the other goals of energy justice.[31]

Understanding this broader framework allows decision-makers to analyze energy justice issues, existing initiatives, and proposed solutions through a consistent lens. The central tenets of the energy justice movement have facilitated researchers and policymakers in recognizing the many inequalities that exist in the current energy system, and further, identifying potential gaps in the current wisdom and ideology surrounding how such issues should be addressed. The next Section contains a more in-depth examination of the current disparities in distributional justice, procedural justice, and recognition that exist within the energy system.

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environment to provide for future generations." Sovacool & Dworkin, *supra*, at 439 (quoting PAUL HAWKEN, THE ECOLOGY OF COMMERCE: A DECLARATION OF SUSTAINABILITY 112 (1994)). Intragenerational equity reflects the ideal of distributive justice by guaranteeing each person's right to fairly access energy services, while intergenerational equity guarantees that same right to future generations. *Id.* at 439–40.

28. Sovacool & Dworkin, *supra* note 17, at 439 ("Availability is the most basic element, for it involves the ability of an economy, market, or system to guarantee sufficient energy resources when needed.").

29. *Id.*

30. *Id.* (explaining that "affordability" encompasses both price stability and price equity); *see* Welton & Eisen, *supra* note 2, at 318 (noting the persistent challenges of providing affordable energy to all Americans and the need for innovating the energy system without significantly increasing prices to consumers and thus exacerbating energy poverty).

31. Sovacool & Dworkin, *supra* note 17, at 440 (describing "responsibility" as the most controversial and complex goal of energy justice because it includes both: the responsibility of governments to minimize environmental degradation, the responsibility of industrialized nations to shoulder the cost of solving these issues, the responsibility to conserve resources for future generations, and the responsibility to protect non-human species).

B. DISPARITIES WITHIN THE ENERGY SYSTEM AND THE JUSTICE-RELATED CONSEQUENCES OF A RENEWABLE ENERGY TRANSITION

Energy justice issues are strongly tied to geographic and spatial factors as they are often connected to practices such as extraction, refining, transportation, storage, combustion, consumption, or waste disposal.[32] Because of this, the negative externalities of energy production and consumption are frequently distributed unevenly. Namely, low-income communities face disproportionate impacts in relation to health outcomes, exposure to pollution, and access to economic opportunities.[33] Such disadvantaged neighborhoods are more likely to have refineries, power plants, transportation corridors, ports, and other industrial land uses with high emissions nearby, and are therefore subjected to much higher levels of air pollution from the energy sector.[34]

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32. Finley-Brook & Holloman, *supra* note 8, at 3, 5, 13 (noting that much of the most environmentally harmful aspects of energy production, like coal ash disposal in landfills, disposal of fracking waste water in injection wells, and crude oil transportation, are concentrated in socially and economically disadvantaged communities); *see* Richard J. Lazarus, *Pursuing "Environmental Justice": The Distributional Effects of Environmental Protection*, 87 NW. U. L. REV. 787, 790 (1993) (explaining how "environmental justice" emerged as the politically attractive term to characterize the "prevalence of hazardous pollutants" in communities of color); Jenkins et al., *Energy Justice*, *supra* note 13, at 632 (discussing the social impacts of extracting rare metals required for wind and solar technology, the loss of habitat due to agricultural production for biofuel, and the creation of radioactive waste during nuclear energy production); Sovacool & Dworkin, *supra* note 17, at 438 (discussing the negative externalities of the energy system that are imposed on society, like "traffic congestion, the extractive industries affiliated with energy production . . . nuclear waste, air pollution, greenhouse gas emissions, and water consumption"); Welton & Eisen, *supra* note 2, at 356 (citing Bean v. Sw. Waste Mgmt. Corp., 482 F. Supp. 673, 677 (S.D. Tex. 1979) (characterizing the *Bean* decision as "refusing [a] preliminary injunction for discrimination in siting of waste facility based on Supreme Court precedent requiring a showing of discriminatory purpose, rather than just disparate impact.")).

33. *See, e.g.*, Finley-Brook & Holloman, *supra* note 8, at 3, 10 (noting the uneven distribution of negative impacts from the current energy system, and of jobs in the renewable energy sector across racial and socioeconomic lines); Caroline Farrell, *A Just Transition: Lessons Learned from the Environmental Justice Movement*, 4 DUKE F.L. & SOC. CHANGE 45, 47–48 (2012) (describing how urban communities are disproportionately impacted by stationary industrial sources of pollution like refineries and power plants, and pollution from mobile sources within the transportation sector).

34. Farrell, *supra* note 33, at 48 (additionally, explaining that "[c]ommunities that host commercial hazardous waste facilities include fifty-six percent people of color whereas communities which do not host commercial hazardous waste facilities include thirty percent people of color"); *see, e.g.*, Finley-Brook & Holloman, *supra* note 8, at 3 ("Over 70% of African Americans live in counties that violate federal air pollution standards."); Shalanda H. Baker, *Anti-Resilience: A Roadmap for Transformational*

Pollution from fossil fuels, such as particulate matter, sulfur dioxide, and volatile organic compounds can be particularly harmful to young children and developing fetuses, and research has demonstrated that exposure to these pollutants can result in adverse birth outcomes, negative respiratory and neurodevelopmental effects, and other long-term health impacts.[35] The growth of the suburbs in combination with racial segregation left many communities of color in "industrial zones, near toxic release sites and coal-burning power plants," while restrictive lending practices "trapped low-income populations in toxic communities."[36] These "energy justice communities" have been found to have higher rates of cardiovascular and respiratory disease, cancer, and premature death, as a result of this exposure to environmental contaminants.[37]

The economic benefits of the energy sector are also not equitably distributed. The literature on energy transition demonstrates that it produces "winners and losers" in respect to the inclusivity and distributional aspects of the benefits of the transition.[38] In the renewable energy sector, "wealthier populations are more likely to gain, sometimes at the expense of the poor."[39] In 2015, the United

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Justice Within the Energy System, 54 HARV. C.R.-C.L. L. REV. 1, 5–6 (2019) (describing the current energy system as being "characterized by 'sacrifice zones' that place extraordinary environmental burdens on some communities in order to benefit other users").

35. *See, e.g.*, Frederica P. Perera, *Multiple Threats to Child Health from Fossil Fuel Combustion: Impacts of Air Pollution and Climate Change*, 125 ENV'T HEALTH PERSP. 141, 142–45.

36. Baker, *supra* note 34, at 10–11 (citing ENERGY DEMOCRACY: ADVANCING EQUITY IN CLEAN ENERGY SOLUTIONS 8–9 (Denise Fairchild & Al Weinrub eds., 2017)).

37. Finley-Brook & Holloman, *supra* note 8, at 3 (discussing the negative health outcomes in disadvantaged communities who experience higher levels of exposure to pollutants); *see The Localized Health Impacts of Fossil Fuels*, CLIMATE NEXUS, https://climatenexus.org/climate-issues/health/the-localized-health-impacts-of-fossil-fuels [https://perma.cc/DSY6-7A7E] ("Oil refining is a major health hazard for people living and working in nearby areas. Hydrocarbon, flue gas and particulate emissions from oil refining and combustion are correlated with increased risk of death from cardiovascular and respiratory illnesses."); Baker, *supra* note 34, at 10–11 (describing the severe health impacts experienced by communities of color living in close proximity to industrial zones, waste disposal sites, and power plants); Farrell, *supra* note 33, at 47–48 (describing a study on air quality in California that demonstrated that two-thirds of Bay Area residents who live within 2.5 miles of a toxic release inventory site are people of color and that sixty percent of Bay Area residents with the highest cancer risk are people of color, "indicating a correlation between pollution exposure and health risk").

38. Carley & Konisky, *supra* note 2, at 569.

39. Finley-Brook & Holloman, *supra* note 8, at 3.

States increased solar energy production by seven gigawatts, but Black Americans continue to hold fewer jobs in the solar industry than other racial groups.[40] American solar jobs have increased 167% over the past decade, with nearly 250,000 solar workers nationwide,[41] however, as of 2018, only 7.6% of jobs in the solar industry were held by Black employees.[42] Similarly problematic, rooftop solar panels and other utility cost-saving upgrades are more likely to benefit wealthier homeowners than lower-income renters.[43] In many instances researchers have demonstrated that access to carbon-cutting and high-efficiency technologies such as electric vehicles, residential and community solar, smart meters,[44] efficient appliances, and LED light bulbs, is concentrated in the higher income brackets,[45] along with access to other economic benefits like clean energy tax credits and electric vehicle rebates.[46]

Additionally, an energy transition is likely to result in short- to medium-term increases in the cost of energy, disproportionately affecting low-income individuals who already spend a higher portion of their income on energy.[47] In the United States, researchers have found that energy becomes unaffordable when utility costs exceed

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40. *Id.*; *see U.S. Solar Industry Diversity Study 2019: New Resources on Diversity and Inclusion in the Solar Workforce*, SOLAR FOUND. & SOLAR ENERGY INDUS. ASS'N 25 (2019) [hereinafter *Solar Diversity Study*], https://www.seia.org/sites/default/files/2019-05/Solar-Industry-Diversity-Study-2019.pdf [https://perma.cc/4DJW-6MPJ] (finding that in 2018, the solar industry workforce was 73.3% White, 16.9% Hispanic/Latino, 8.5% Asian, and 7.6% Black or African American).

41. Anmar Frangoul, *U.S. Solar Jobs Have Risen 167% Since 2010, New Data Shows* (Feb. 19, 2020), https://www.cnbc.com/2020/02/19/us-solar-jobs-have-risen-167percent-since-2010-new-data-shows.html [https://perma.cc/7MRY-Z53H]; *National Solar Jobs Census 2020*, SOLAR ENERGY INDUS. ASS'N ET AL. 3 (2021) https://www.seia.org/sites/default/files/2021-05/National-Solar-Jobs-Census-2020-FINAL.pdf [https://perma.cc/3275-UWTX].

42. *Solar Diversity Study*, *supra* note 40, at 25; *see also* Carley & Konisky, *supra* note 2, at 572 (noting that only eight percent of the overall energy efficiency workforce in the U.S. is Black).

43. Finley-Brook & Holloman, *supra* note 8, at 3.

44. *See, e.g.*, Shelley Welton, *Grid Modernization and Energy Poverty*, 18 N.C. J.L. & TECH. 565, 566 (2017) (explaining the implementation of "smart meters" and "smart appliances" in grid modernization efforts).

45. Carley & Konisky, *supra* note 2, at 572 (attributing this to the high upfront costs of these technologies, and the lack of subsidies and incentives for those who do not have strong credit or do not own their own property); Welton & Eisen, *supra* note 2, at 339 (expressing concern that solar panels could become "the next granite countertop," available only to those who can afford them).

46. Welton & Eisen, *supra* note 2, at 339.

47. Carley & Konisky, *supra* note 2, at 571.

six percent of a household's total income.[48] Many lower-income households whose energy expenditures exceed this threshold are described as experiencing "energy poverty."[49] While, the median U.S. household spends around 3.5% of its income on energy bills, some of the lowest-income households are experiencing significant energy poverty; spending as much as twenty-five to thirty percent of their income on utilities.[50] Additionally, the average Black household in the United States spends almost four percent more of their income on utilities than the overall U.S. household average, and the average rural low-income resident spends almost six percent more.[51] In 2015, thirty-one percent of Americans reported having difficulty paying their energy bills or maintaining comfortable temperatures in their home, twenty percent reported having to go without purchasing other necessities such as food in order to pay their utilities, and fourteen percent reported having faced the threat of their electricity being disconnected.[52] A study out of Detroit found that Black residents who were surveyed were almost twice as likely as non-Black residents to be behind on utilities payments and over three times more likely to have had their utility service shut-off than non-Black

48. Adam Chandler, *Where the Poor Spend More Than 10 Percent of Their Income on Energy*, ATLANTIC (June 8, 2016), https://www.theatlantic.com/business/archive/2016/06/energy-poverty-low-income-households/486197 [https://perma.cc/7MY8-NDST].

49. Welton, *supra* note 44, at 587, 589 (describing energy poverty, or insecurity, as "the inability of households to afford energy services for adequate heating and cooling resulting in uncomfortable indoor temperatures, material deprivation, and accumulated utility debt").

50. *Id.* at 589. This "Home Energy Affordability Gap" was calculated by combining income data from the U.S. Census with power bill estimates. Dan Boyce & Jordan Wirfs-Brock, *High Utility Costs Force Hard Decisions for the Poor*, INSIDE ENERGY (May 8, 2016), http://insideenergy.org/2016/05/08/high-utility-costs-force-hard-decisions-for-the-poor [https://perma.cc/BJ4T-FBQW]. In her article on energy poverty, Welton further describes how "these statistics interact with housing infrastructure and urban settlement patterns, as well as the ways in which the economics of electricity influenced its geographical spread and contributed to current patterns of energy poverty." Welton, *supra* at 594.

51. Carley & Konisky, *supra* note 2, at 571. "In the US, on average, urban low-income and African American households, respectively, spend 7.2% and 5.4% of their income on energy utilities. . . . Rural low-income residents, for example, pay 9%. In contrast, urban higher income residents pay 2.3% and the average for all households is 3.3%." *Id.*

52. *Id.* at 572; *see* Welton, *supra* note 44, at 567 (noting that in 2015, 14 million households in the U.S. had unpaid utility bills, and 2.2 million had their service disconnected).

residents.[53] It is clear that the individuals facing the greatest barriers to accessing new technologies and opportunities within the energy system are the same people who would benefit the most from the increases in affordability that advances in energy efficiency and generation could provide.

Research has also demonstrated that low-income and minority communities are more likely to live in inefficient dwellings that require more energy to appropriately cool or heat and have inefficient appliances; conditions which would worsen energy insecurity if the price of utilities were to increase during the transition to primarily renewable sources.[54] Similarly, the amount low-income communities in the United States spend on gasoline comprises a significant proportion of their total expenditures, meaning price increases at the fuel pump might also considerably affect their ability to afford other essentials.[55] Moreover, the impact of decreased access to affordable energy does not stop at economic distress, but can lead to negative physical and mental health consequences as well. When households cannot afford to pay their electricity bills during the winter months, they risk exposure to intolerable temperatures and might even resort to dangerous practices like using gas stoves to heat their homes.[56]

Although there are some energy bill assistance programs that seek to address such issues, like the Low Income Home Energy Assistance Program (LIHEAP), a federal program that provides energy assistance to low-income households,[57] such assistance has failed to solve the "affordability gap" in energy services.[58] For instance, in

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53. Welton, *supra* note 44, at 594 (citing Diana Hernández, *Sacrifice Along the Energy Continuum: A Call for Energy Justice*, 8 ENV'T JUST. 151 (2015)).

54. Carley & Konisky, *supra* note 2, at 572; Welton, *supra* note 44, at 590 ("[T]he disparity in energy burdens results in large part from the fact that low-income homes are less efficient, such that the poor spend more not only as a percentage of income but also on a per-square-foot basis . . . .").

55. Clark A. Miller, Alastair Iles & Christopher F. Jones, *The Social Dimensions of Energy Transitions*, 22 SCI. AS CULTURE 135, 138 (2013).

56. Staff Writer, Opinion, *Point of View: Energy Is a Basic Need, and Many Americans Are Struggling to Afford It in the COVID-19 Recession*, PALM BEACH POST (Aug. 9, 2020), https://www.palmbeachpost.com/story/opinion/columns/guest/2020/08/09/point-of-view-energy-is-basic-need-and-many-americans-are-struggling-to-afford-it-in-covid-19-recess/42196627 [https://perma.cc/DS96-HVUA].

57. *See Low Income Home Energy Assistance Program (LIHEAP)*, ADMIN. FOR CHILD. & FAMS., https://www.acf.hhs.gov/ocs/low-income-home-energy-assistance-program-liheap [https://perma.cc/P6UF-3UBQ].

58. Welton, *supra* note 44, at 589–91 (describing that the "energy affordability

2015, LIHEAP provided $3.3 billion in funding, which was distributed to only 6.3 million of the 38.5 million households that meet the income-based eligibility standards for assistance.[59] Moreover, the growing "haves-versus-have-nots divide in clean energy"[60] further bars access to utility-bill-lowering technologies for those who may experience energy poverty and could use it the most.[61]

In February 2021, when record-low temperatures hit the state of Texas, the power grid collapsed, and millions of residents faced power outages and were left without the ability to heat their homes for days.[62] This crisis disproportionately impacted low-income households and communities of color, especially for those living in areas with the longest-lasting power outages.[63] The grid failure exacerbated disparities within disadvantaged communities like substandard infrastructure, health issues, and a lack of resources.[64]

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gap," which refers to the amount Americans are paying in utilities above what is considered "affordable," reached $41 billion in 2015).

59. *Id.* at 590–91.

60. Welton & Eisen, *supra* note 2, at 339.

61. Welton, *supra* note 44, at 587 (describing energy poverty, or insecurity, as "the inability of households to afford energy services for adequate heating and cooling resulting in uncomfortable indoor temperatures, material deprivation, and accumulated utility debt.").

62. *See, e.g.*, Jeffrey Ball, *The Texas Blackout Is the Story of a Disaster Foretold*, TEX. MONTHLY (Feb. 19, 2021), https://www.texasmonthly.com/news-politics/texas-blackout-preventable [https://perma.cc/43QQ-RNDT] (explaining that more than 4.5 million people lost power in Texas as a result of the winter storm).

63. *See* Silvia Foster-Frau & Arelis R. Hernández, *Freezing Temperatures and Power Outages Hurt Texas's Most Vulnerable Yet Again*, WASH. POST (Feb. 16, 2021), https://www.washingtonpost.com/national/texas-storm-hurts-most-vulnerable-again/2021/02/16/fe3c8fd4-707b-11eb-93be-c10813e358a2_story.html [https://perma.cc/WXJ5-F4B8] (discussing the dire circumstances faced by many during the power outages); Arianna Skibell, *Texas Grid Crisis Exposes Environmental Justice Rifts*, E&E NEWS (Feb. 23, 2021), https://www.eenews.net/stories/1063725725 (last visited Mar. 16, 2022) (describing how historically Black and Latinx neighborhoods in Austin lost power, while downtown Austin was excluded from the planned outages).

64. *See* N'dea Yancey-Bragg & Rick Jervis, *Texas' Winter Storm Could Make Life Worse for Black and Latino Families Hit Hard by Power Outages*, USA TODAY (Feb. 20, 2021), https://www.usatoday.com/story/news/nation/2021/02/20/texas-ice-storm-blackouts-minorities-hardest-hit-recovery/4507638001 [https://perma.cc/ASZ9-C52P] (discussing the inability of some low-income families to stock up on essentials in preparation for the storm due to financial barriers and limited access to transportation); Skibell, *supra* note 63 (describing that low-income communities are more likely to live in poorly insulated home, and less likely to own backup generators or to have the disposable income to seek refuge in hotels); *see also* Rachel Isacoff, *Texas Crisis Highlights U.S. Energy Justice Issues*, ROCKEFELLER FOUND. (Mar. 4, 2021), https://www.rockefellerfoundation.org/blog/texas-crisis-highlights-u-s-energy

There was also concern that due to the disproportionate energy burden on low-income individuals, many disadvantaged communities in Texas would be hit the hardest by the extreme spike in electricity prices that occurred during the height of the crisis.[65] As a result of the price surge during the winter storm, some Texans are still on the hook for thousands of dollars in electricity bills[66]—a cost that will likely reverberate throughout Texas' competitive market.[67] In No-

-justice-issues [https://perma.cc/HM3H-V3VC] (explaining how the pandemic and the Texas energy crisis exacerbated energy justice issues).

65. Robert Bryce, *Low-Income Texans Will Foot Big Bills After the Blackouts*, FORBES (Feb. 28, 2021), https://www.forbes.com/sites/robertbryce/2021/02/28/low-income-texans-will-foot-biggest-bills-after-the-blackouts (last visited Mar. 16, 2022) ("[D]uring the height of the crisis, when electricity prices were peaking at $9,000 per megawatt-hour, the ERCOT electric meter was spinning at a rate of nearly $10 billion *per day*."); *see* Off. Energy Efficiency & Renewable Energy, *Low-Income Community Energy Solutions*, U.S. DEP'T ENERGY, https://www.energy.gov/eere/slsc/low-income-community-energy-solutions [https://perma.cc/Z3TP-PKDQ] (explaining that low-income households spend a disproportionately higher percentage of gross household income spent on energy costs); *see also* Erin Douglas & Mitchell Ferman, *Everyday Texans Overlooked in State Lawmakers' Response to Power Outages During Winter Storm*, TEX. TRIB. (June 3, 2021), https://www.texastribune.org/2021/06/03/texas-electricity-bills-winter-storm-legislature [https://perma.cc/PSY9-RR9F].

66. Erica Proffer, *Texas Public Utility Commission Lowers Max Rate for Energy*, KVUE (Nov. 30, 2021), https://www.kvue.com/article/news/local/texas/texas-public-utility-commission-lowers-max-rate-energy/269-0d6628f1-1bc8-4d7d-bddd-e5d5dbd904dd [https://perma.cc/NCJ6-LDZU]; Bob Sechler, *In Wake of Power Outages, Texas Lowers Price Cap for Electricity Providers*, AUSTIN AM.-STATESMAN (Dec. 2, 2021), https://www.statesman.com/story/business/2021/12/02/texas-lowers-electricity-price-cap-after-february-freeze-power-outages/8838232002 [https://perma.cc/EX4A-GAFL].

67. In 1999, the Texas Legislature passed Senate Bill 7, allowing for the "deregulation" of the state's energy market, thus decoupling generation from transmission and eliminating the protected monopolies that exist for utilities under a traditional regulation scheme. S.B. 7, 76th Leg., Reg. Sess. (Tex. 1999). In theory this competitive system is meant to maintain low energy rates, increase reliability, and spur innovation by providing Texans with a range of providers to choose from in order to meet their energy needs. However, in practice there is also "no capacity market paying generators to ensure there will be enough power to meet peak demand," a reality that contributed to the widespread blackouts the state experienced in early 2021. *See* Ed Hirs & Ted O'Callahan, *Why the Texas Power Market Failed*, YALE INSIGHTS (Mar. 23, 2021), https://insights.som.yale.edu/insights/why-the-texas-power-market-failed [https://perma.cc/G8U9-7TMA]; *see also* Loren Steffy, *Despite Losing Power for Days, Texans Will Pay Higher Power Bills—Perhaps for Decades to Come*, TEX. MONTHLY (Mar. 4, 2021), https://www.texasmonthly.com/news-politics/blackout-crisis-texans-electric-bills [https://perma.cc/F4HN-WXKY] ("In competitive markets like Dallas and Houston, where customers can pick their electricity provider, most have fixed-rate contracts, which will mute the immediate impact. However, they may be forced

vember 2021 the Texas Public Utilities Commission did vote to lower the maximum allowable price from $9,000 to $5,000 per megawatt hour, but this change will not provide relief for those households hit hardest by the storm who already struggle financially.[68]

Overall, the unequal distribution of the benefits of innovation and transition within the energy sector has proven itself to be pervasive and "particularly resilient."[69] The current energy system continues to present a number of physical, financial, and political challenges to the socially and economically marginalized U.S. communities. These inequalities are amplified by the growing political and wealth divide in this country, and the disparate approaches to policy it has inspired. Understanding the scope of disparities within the energy sector allows decision-makers to address the impacts of energy justice issues from all angles. This knowledge helps researchers and policymakers to recognize potential gaps in the way these issues are currently being addressed and identify innovative solutions. The next Section explores the ways in which these energy justice issues have been exacerbated since early 2020, due to the COVID-19 pandemic.

C. A PANDEMIC, A NEW PRESIDENT, AND A RENEWED FOCUS ON ENERGY JUSTICE

Energy justice issues have been magnified exponentially by the COVID-19 pandemic. Due to the fact that most energy services are organized as consumer goods, those who lost their source of steady

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to find new providers or accept more expensive contracts when they renew. And many of those providers may be forced out of business entirely as the costs of the outages ripple through the market.").

68. Proffer, *supra* note 66. In the aftermath of the storm, the Texas PUC decided not to reduce the February 2021 rates. *See* Matthew S. Schwartz, *Texas Won't Reduce $16 Billion in Electricity Charges from Winter Storm*, NPR (Mar. 6, 2021), https://www.npr.org/2021/03/06/974417969/texas-wont-reduce-16-billion-in-electricity-charges-from-winter-storm [https://perma.cc/7ZMW-AZRT] ("[F]or a period of 32 hours during the deepest freeze of February's winter storm, power companies were paying $9 per kilowatt-hour for electricity—about 75 times higher than the state's average winter costs. Companies passed those costs on to consumers."); Leticia Miranda, *Who's Really Left Holding the Bag for those Sky-High Electricity Bills in Texas?*, NBC NEWS (Feb. 23, 2021), https://www.nbcnews.com/business/business-news/who-s-really-left-holding-bag-those-sky-high-electricity-n1258678 [https://perma.cc/GLJ7-GBRJ] ("We're all going to pay for it some way, meaning taxpayers, shareholders or customers . . . ." (internal quotation marks omitted)).

69. Baker, *supra* note 34, at 14–15 (referring to the enduring issues the environmental justice movement has been working to address since its inception in the 1980s).

income in the midst of the pandemic were also at risk of losing access to reliable energy services.[70] While a nationwide moratorium on utility shutoffs could actually reduce the continued spread of the virus and its variants by allowing more people to "shelter in place,"[71] in many states there is no statutory mechanism to protect consumers from continuing to amass debt during a moratorium.[72] Instead, U.S. households continued to accrue tens of billions of dollars in back-due electric and gas debts during the course of the pandemic.[73] A significant number of Americans regularly struggle to afford energy services, even before the economic disruption of a pandemic, and now, without the help of debt forgiveness and consumer friendly practices

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70. Kathleen Brosemer, Chelsea Schelly, Valoree Gagnon, Kristin L. Arola, Joshua M. Pearce, Douglas Bessette & Laura Schmitt Olabisi, *The Energy Crises Revealed by COVID: Intersections of Indigeneity, Inequity, and Health*, 68 ENERGY RSCH. & SOC. SCI. 1, 2–3 (2020); *see* Taylor Haelterman, *COVID-19 Pandemic Revealed Underlying Energy Justice Crises, Study Finds*, GREAT LAKES ECHO (Sept. 9, 2020), https://greatlakesecho.org/2020/09/09/covid-19-pandemic-revealed-underlying-energy-justice-crises-study-finds [https://perma.cc/9STM-UH3L] (explaining that even in Michigan, where there was a moratorium put on utility shut-offs and utility bills, state regulations require that these costs must eventually be recovered, meaning that consumers will have to pay those bills back in the future).

71. Rachel M. Cohen, *There Could Be an Energy Bill Debt Tsunami, Too*, BLOOMBERG (Feb. 4, 2021), https://www.bloomberg.com/news/articles/2021-02-04/unpaid-energy-bills-bring-calls-for-utility-relief [https://perma.cc/6YNC-MAXL] (often when households lose water and electricity their only option is to move in with friends or family which can "exacerbat[e] crowding and disease transmission"); Mike Ludwig, *Biden Calls for $15 Federal Minimum Wage with Pandemic Relief Package*, TRUTHOUT (Jan. 15, 2021), https://truthout.org/articles/biden-calls-for-15-federal-minimum-wage-with-pandemic-relief-package [https://perma.cc/4B5F-HL9J] ("Researchers have linked evictions to increased spread of COVID-19 and housing inequality to higher rates of infection and death among Black, Latinx and Indigenous people.").

72. *See* Alex Brown, *'Tidal Wave' of Evictions, Utility Shutoffs Tests Lawmakers*, PEW CHARITABLE TRS. (Jan. 28, 2012), https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2021/01/28/tidal-wave-of-evictions-utility-shutoffs-tests-lawmakers [https://perma.cc/D6MZ-DC7Q] (explaining that few states have established a safety net to help consumers handle their accumulating debt once moratoriums expire); Haelterman, *supra* note 70 ("In the state of Michigan, there was a moratorium put on utility shut-offs and utility bills even . . . the way that the state regulations work these costs eventually need to be recovered, so even if a resident, or a household, is not paying their utility bills currently because of the moratorium they will eventually have to pay those bills. So, it will eventually come down the line.").

73. *See* Tony Romm, *Senate Democrats Call on Power, Water, Telecom Giants to Halt All Utility Shutoffs*, WASH. POST (Oct. 30, 2020), https://www.washingtonpost.com/us-policy/2020/10/30/power-water-internet-shutoffs-congress [https://perma.cc/68D4-P882] ("Families nationwide stand to rack up more than $24 billion in back-due electric and gas debts [by the end of 2020].").

like income-based utility rates, many such households will be additionally burdened by substantial utility debt long after the virus subsides.[74]

The disparities in health outcomes among marginalized communities who are disproportionately impacted by air pollution from the energy sector are also being exacerbated by COVID-19.[75] Further, the data has demonstrated that these communities appear to be more vulnerable to this fatal virus due to a number of socioeconomic factors.[76] In one analysis of 4.3 million patients from sixty-eight studies, researchers found that "African American, Hispanic, and Asian American individuals had a higher risk of COVID-19 positivity and ICU admission."[77] Another study of selected states and cities with demographic data on COVID-19 deaths showed that thirty-four percent of deaths were among Black individuals, though this group represents only thirteen percent of the total U.S. population.[78] In Chicago, Black residents were shown to be more than twice as likely to die from COVID-19 than non-Black residents of the city.[79] Likewise, in New York City, researchers found that "COVID-19 associated death rates [were] twice as high for people who are Black and Latinx com-

74. *See* Brosemer et al., *supra* note 70, at 3; *see also supra* notes 65–69 (discussing the impact of the February 2021 energy crisis in Texas on retail electricity prices).

75. Brosemer et al., *supra* note 70, at 2.

76. *See Introduction to COVID-19 Racial and Ethnic Health Disparities*, CTR. DISEASE CONTROL & PREVENTION (Dec. 10, 2020), https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/index.html [https://perma.cc/KD4V-EJ3K].

77. Shruti Magesh, Daniel John, Wei Tse Li, Yuxiang Li, Aidan Mattingly-app, Sharad Jain, Eric Y. Chang & Weg M. Ongkeko, *Disparities in COVID-19 Outcomes by Race, Ethnicity, and Socioeconomic Status: A Systematic Review and Meta-Analysis*, 4 JAMA NETWORK OPEN 1 (2021), https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2785980 [https://perma.cc/EVD9-UUJF].

78. Laurens Holmes Jr., Michael Enwere, Janille Williams, Benjamin Ogundele, Prachi Chavan, Tatiana Piccoli, Chinacherem Chinaka, Camillia Comeaux, Lavisha Pelaez, Osatohamwen Okundaye, Leslie Stalnaker, Fanta Kalle, Keeti Deepika, Glen Philipcien, Maura Poleon, Gbadebo Ogungbade, Hikma Elmi, Valescia John & Kirk W. Dabney, *Black-White Risk Differentials in COVID-19 (SARS-COV2) Transmission, Mortality and Case Fatality in the United States: Translational Epidemiologic Perspective and Challenges*, 17 INT'L J. ENV'T RSCH. & PUB. HEALTH 1, 5 (2020).

79. *Id.* at 1. "In Chicago, residents in highly segregated neighborhoods with higher social vulnerability, such as higher levels of poverty and lower levels of education, income, and employment, are disproportionately exposed to social and health risks." *Disparities in Deaths*, CTR. DISEASE CONTROL & PREVENTION (Dec. 10, 2020), https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/disparities-deaths.html#ref3 [https://perma.cc/7R7R-2UNY].

pared to people who are white."[80] Nationwide analyses have shown that counties with higher percentages of Black residents experienced higher rates of confirmed COVID-19 cases and death rates than counties with higher percentages of white residents.[81]

In early February 2021, the Senate approved a budget resolution for a COVID-19 relief proposal,[82] and in early March, President Biden signed the expansive pandemic relief bill into law.[83] The $1.9 trillion coronavirus relief package provides $21.6 billion in rental assistance for low-income renters and creates low-income assistance programs that help households pay their energy and water bills.[84]

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80. Brosemer et al., *supra* note 70, at 2.

81. Uma V Mahajan & Margaret Larkins-Pettigrew, *Racial Demographics and COVID-19 Confirmed Cases and Deaths: A Correlational Analysis of 2886 US Counties*, 42 J. PUB. HEALTH 445 (2020) ("A weak, albeit very significant, positive relationship exists between the percentage of African-Americans living in a county and the percentage of COVID-19 confirmed cases, confirmed deaths and case mortality in the county.").

82. *See* Erica Werner & Jeff Stein, *Senate Vote Paves Way for Passage of Biden's Economic Relief Plan*, WASH. POST (Feb. 8, 2021), https://www.washingtonpost.com/business/2021/02/04/senate-vote-a-rama-biden-economic-relief-stimulus [https://perma.cc/9L4Q-K84B] ("The Senate passage of the budget resolution moves the "budget reconciliation" process along, allowing Biden's relief bill to pass the Senate with a simple-majority vote, instead of the 60 normally required.").

83. Ken Thomas, Catherin Lucey & Aaron Zitner, *The Covid-19 Relief Bill Has Passed. Now Biden and the GOP Both Plan to Tell Voters What's in It*, WALL ST. J. (Mar. 11, 2021), https://www.wsj.com/articles/the-covid-19-relief-bill-has-passed-now-biden-and-the-gop-both-plan-to-tell-voters-whats-in-it-11615458606 [https://perma.cc/VJ47-MPQZ].

84. *See* American Rescue Plan Act of 2021, H.R. 1319, 117th Cong. (2021); Douglas Rice & Ann Oliva, *Housing Assistance in American Rescue Plan Act Will Prevent Millions of Evictions, Help People Experiencing Homelessness*, CTR. ON BUDGET & POL'Y PRIORITIES (Mar. 11, 2021), https://www.cbpp.org/research/housing/housing-assistance-in-american-rescue-plan-act-will-prevent-millions-of-evictions [https://perma.cc/7KG7-64E2]; Jacob Pramuk, *House Passes $1.9 Trillion Covid Relief Bill, Sends It to Biden to Sign*, CNBC (Mar. 10, 2021), https://www.cnbc.com/2021/03/10/stimulus-update-house-passes-1point9-trillion-covid-relief-bill-sends-to-biden.html [https://perma.cc/BVP7-T7GL] (describing the contents of the relief bill); *see also* Erica Werner & Jeff Stein, *Biden Unveils $1.9 Trillion Economic and Health-Care Relief Package*, WASH. POST (Jan. 14, 2021), https://www.washingtonpost.com/us-policy/2021/01/14/biden-stimulus-covid-relief [https://perma.cc/9TZQ-K9KQ] ("Mark Wolfe, head of the National Energy Assistance Directors' Association, said he was disappointed the proposal didn't include more money for rental assistance or low-income energy assistance."); Ludwig, *supra* note 71 (outlining President Biden's pandemic relief proposal, and the funds earmarked for utilities assistance). Overall, the relief package approved by the Senate in early 2021 included "$25 billion in rental assistance for low- and moderate-income households who have lost jobs during the pandemic" and

However, despite calls by some politicians and various advocacy groups, the bill does not include a national moratorium on utility shutoffs.[85] The U.S. is still not in the clear with this pandemic, and consequently marginalized groups are still at risk of losing their cooling, heat, and power.

While energy policy choices are being made in the wake of the pandemic with economic recovery in mind, this moment also offers an opportunity to promote energy justice initiatives that support individuals who have been disproportionately impacted by the effects of COVID-19.[86] In the midst of the Great Recession in early 2009, then-President Barack Obama signed the American Recovery and Reinvestment Act (ARRA) into law, which allocated $90 billion to environmental investments such as renewables, energy efficiency, and green infrastructure.[87] This was significant given that state mandates, tax incentives, and corporate initiatives have been key drivers of the renewable energy transition.[88] Abroad, the European Commission, European Parliament, and European Union Member States passed a recovery plan to address the current economic and social

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"[a]nother $5 billion would be set aside to help struggling renters pay their utility bills." Tami Luhby & Katie Lobosco, *Here's What's in Biden's $1.9 Trillion Economic Rescue Package*, CNN (Jan. 15, 2021), https://www.cnn.com/2021/01/14/politics/biden-economic-rescue-package-coronavirus-stimulus/index.html [https://perma.cc/89YA-FMJY].

85. *See* Ludwig, *supra* note 71 ("Rep. Rashida Tlaib (D-Michigan) . . . urg[ed] the Biden administration to enact nationwide moratorium on utility shut-offs and reconnect water lines to households that already lost service."); Peter Hart & Jean Su, *600 Groups Urge Biden to Halt Water, Electricity, Broadband Shutoffs with Emergency Executive Order on First Day*, CTR. BIOLOGICAL DIVERSITY (Jan. 13, 2021), https://biologicaldiversity.org/w/news/press-releases/600-groups-urge-biden-halt-water-electricity-broadband-shutoffs-emergency-executive-order-first-day-2021-01-13 [https://perma.cc/L6NJ-6TZZ].

86. *See* Jim Tankersley, *Biden Details $2 Trillion Plan to Rebuild Infrastructure and Reshape the Economy*, N.Y. TIMES (Mar. 31, 2021), https://www.nytimes.com/2021/03/31/business/economy/biden-infrastructure-plan.html [https://perma.cc/E335-TMSU]. In discussing Biden's infrastructure bill, "[White House officials] said the plan would also accelerate the fight against climate change by hastening the shift to new, cleaner energy sources, and would help promote racial equality in the economy." *Id.*

87. Karl Nietvelt, Massimo Shiavo, Roman Kramarchuk & Dan Klein, *The Energy Transition and COVID-19: A Pivotal Moment for Climate Policies and Energy Companies*, S&P GLOBAL RATINGS (Sept. 24, 2020), https://www.spglobal.com/ratings/en/research/articles/200924-the-energy-transition-and-covid-19-a-pivotal-moment-for-climate-policies-and-energy-companies-11651888 (last visited Mar. 16, 2022).

88. Nietvelt et al., *supra* note 87.

crisis brought on by the COVID-19 pandemic.[89] Of the €1.8 trillion package, large portions are designated for fighting climate change, protecting biodiversity, modernization through research and innovation, and a just climate transition.[90] This COVID-19 response package also focuses on energy independence, allocating billions of dollars towards developing a green hydrogen energy storage industry in Europe, which would help to address reliability and price stability issues within the renewable energy sector, and further promote a green transition.[91]

Biden's climate agenda presents a similar opportunity to incorporate funding programs, incentives, and policy mandates that would specifically address energy justice issues, while promoting the transition to a more sustainable energy future. During his presidential campaign, President-Elect Joe Biden took inspiration from the "Green New Deal" in crafting his own climate agenda.[92] While Biden's legislative plan excludes some of the more controversial policies in the original Green New Deal resolution, the most recent iteration of Biden's Build Back Better Act (BBB Act) still calls for investing around $2 trillion into climate change and social policy initiatives like expanding renewable energy infrastructure, cutting greenhouse gas pollution, and protecting vulnerable ecosystems, while also addressing racial and economic inequalities and ensuring that the benefits of such programs are specifically delivered to disadvantaged communities.[93] In fact, one of Biden's first acts in office was to sign

89. European Commission Press Release IP/20/2073, EU Budget: European Commission Welcomes Agreement on €1.8 Trillion Package to Help Build Greener, More Digital and More Resilient Europe (Nov. 10, 2020).

90. *Id.*

91. Nietvelt et al., *supra* note 87; *see also* Jonas Teusch & Kurt Van Dender, *Carbon Pricing Is Necessary for a Green Recovery*, INT'L TAX REV. (Oct. 7, 2020), https://www.internationaltaxreview.com/article/b1npfbysy2q0tj/carbon-pricing-is-necessary-for-a-green-recovery [https://perma.cc/2QWQ-H4VM] (arguing that COVID-19 recovery efforts should accelerate decarbonization efforts, specifically through the implementation of carbon pricing schemes).

92. *See* Spencer Bokat-Lindell, *Could Biden Be the Climate Change President?*, N.Y. TIMES (July 21, 2020), https://www.nytimes.com/2020/07/21/opinion/biden-climate-change.html [https://perma.cc/7GZ6-HVEF]; Lisa Friedman, *What Is the Green New Deal? A Climate Proposal, Explained*, N.Y. TIMES (Feb. 21, 2019), https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html [https://perma.cc/YBK3-F3AP]; Nietvelt et al., *supra* note 87.

93. *See* Press Release, White House, President Biden Announces the Build Back Better Framework (Oct. 28, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/28/president-biden-announces-the-build-back-better-framework [https://perma.cc/Z9DT-MKDH] ("The framework's $555 billion

Executive Order (EO) 14008, "Tackling the Climate Crisis at Home and Abroad" which created a government-wide "Justice40 Initiative" that promises to deliver at least forty percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities.[94]

The $1.9 trillion COVID-19 relief package that passed in March 2021 laid the groundwork for Biden's ambitious climate plan by providing $100 million in environmental justice grants to the Environmental Protection Agency to address air quality issues and environmental health risks in low-income and minority communities.[95] The bill also includes $4.5 billion in additional funding for LIHEAP, $500 million for water utility bill assistance for low-income households, and $7.6 billion in funding to community health centers.[96] Almost immediately after his inauguration, President Biden also ap-

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investment represents the largest single investment in our clean energy economy in history, across buildings, transportation, industry, electricity, agriculture, and climate-smart practices across lands and waters."); Katie Lobosco & Tami Luhby, *10 Things You Didn't Know Are in the Democrats' Build Back Better Bill*, CNN (Dec. 8, 2021), https://www.cnn.com/2021/12/07/politics/biden-build-back-better-spending-bill/index.html [https://perma.cc/YQH4-KVK7]; Jordan Weissmann, *Joe Biden Is Campaigning on the Green New Deal, Minus the Crazy*, SLATE (July 15, 2020), https://slate.com/business/2020/07/joe-bidens-climate-plan-is-the-green-new-deal-minus-the-crazy.html [https://perma.cc/934Q-ZZ4H] (explaining that Biden's climate proposal does not include universal healthcare or a federal jobs guarantee like the Green New Deal). Biden's earlier announced climate agenda called for achieving a carbon-neutral energy sector by 2035, but that specific language is not included in the Build Back Better Framework. *See* Press Release, White House, Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies (Apr. 22, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies [https://perma.cc/499Z-DYHE].

94. *Justice40 Initiative*, U.S. DEP'T TRANSP. (Nov. 18, 2021), https://www.transportation.gov/equity-Justice40 [https://perma.cc/R329-TRTE]; Press Release, White House, *The Path to Achieving Justice40* (July 20, 2021), https://www.whitehouse.gov/omb/briefing-room/2021/07/20/the-path-to-achieving-justice40 [https://perma.cc/V6XH-G56R].

95. Marianne Lavelle, *Environmental Justice Plays a Key Role in Biden's Covid-19 Stimulus Package*, INSIDECLIMATE NEWS (Mar. 14, 2021), https://insideclimatenews.org/news/14032021/environmental-justice-plays-a-key-role-in-bidens-covid-19-stimulus-package [https://perma.cc/NL2P-WXPR]; Erin Fitzgerald, *Earthjustice Applauds the Passage of COVID-19 Relief Bill*, EARTHJUSTICE (Mar. 10, 2021), https://earthjustice.org/news/press/2021/earthjustice-applauds-the-passage-of-covid-19-relief-bill [https://perma.cc/8EUQ-QTRP].

96. Fitzgerald, *supra* note 95.

pointed Shalanda H. Baker as the Deputy Director for Energy Justice at the U.S. Department of Energy.[97] President Biden created Baker's role to address racial injustices within the clean energy transition, in order to tackle the climate crisis while simultaneously building an equitable clean energy future.[98] One of Baker's early priorities has been to address the rising energy bills of those who have lost their jobs during the COVID-19 pandemic.[99] Baker further wants to ensure that marginalized communities are meaningfully engaged in the clean energy transition, and that these communities are actually receiving the benefits that will flow from the transition.[100]

In a particularly significant development, President Biden's infrastructure bill passed in late 2021, so providing additional funding, resources, and attention to energy and environmental justice initiatives.[101] While only time will tell the actual impact this legislation

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97. Hillary Chabot, *She's Bringing Her Energy Justice Mission to the Biden Administration*, NEWS@NORTHEASTERN (Jan. 23, 2021), https://news.northeastern.edu/2021/01/23/shalanda-baker-is-bringing-her-energy-justice-mission-to-the-biden-administration [https://perma.cc/3LFH-RR7M]; *see also* Off. Econ. Impact & Diversity, *Shalanda H. Baker: Secretarial Advisor on Equity and Deputy Director for Energy Justice*, U.S. DEP'T ENERGY, https://www.energy.gov/diversity/person/shalanda-h-baker [https://perma.cc/P3WF-X2WK].

98. Chabot, *supra* note 97; Press Release, White House, Fact Sheet: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government (Jan. 27, 2021), https://www.whitehouse.gov/briefing-room/statements-rleases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government [https://perma.cc/32TM-73QJ] (elaborating on Biden's various commitments to address the climate crisis and environmental justice issues).

99. Chabot, *supra* note 97 ("Right now we have a moratorium on energy shutoffs in place, but we haven't had a broader economic correction and the costs keep mounting. I think we should be looking for relief in that respect." (internal quotation marks omitted)).

100. *See This Biden Appointee Is Bringing Justice to Green Energy*, SCI. FRIDAY (Feb. 5, 2021), https://www.sciencefriday.com/segments/green-energy-justice [https://perma.cc/8KU4-EGDV] (interviewing Shalanda Baker about her book, *Revolutionary Power: An Activist's Guide to the Energy Transition*, and her new position in the Biden administration).

101. The Bipartisan Infrastructure Deal was passed by Congress in November 2021. Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429; *see also* Press Release, White House, Fact Sheet: The Bipartisan Infrastructure Deal (Nov. 6, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/06/fact-sheet-the-bipartisan-infrastructure-deal [https://perma.cc/Z9KH-J4ZP]; Brian Naylor & Deirdre Walsh, *Biden Signs the $1 Trillion Bipartisan Infrastructure Bill into Law*, NPR (Nov. 15, 2021), https://www.npr.org/2021/11/15/1055841358/biden-signs-1t-bipartisan-infrastructure-bill-into-law [https://perma.cc/KFH5

will have on meaningfully furthering the goals of energy justice, it is critical that as decision-makers move forward to actualize these broad policy objectives they look to stakeholders, past experience, and the existing energy justice framework for guidance. By determining whether proposed climate agendas meet the core tenets of energy justice,[102] energy policy decision-makers can both identify critical on-going problems and injustices within the energy sector and ensure that the transition initiatives being adopted and implemented throughout the country do not exacerbate such injustices—especially in the wake of the pandemic. Accordingly, exploring the ways in which the COVID-19 pandemic is disrupting the U.S.'s current approach to renewable energy expansion affords policymakers with a distinctive opportunity to reshape the system into one that is more equitable. When policies of the past have typically disproportionately benefited high earners,[103] energy justice considerations must be included in the decision-making process to avoid such downfalls as we move forward.

II. LESSONS LEARNED FROM EXISTING ENERGY JUSTICE INITIATIVES

For this country to meaningfully address the many inequities in the prevailing energy system that are discussed in Part I, it is going to require all levels of government to establish legislation and policies that focus directly on resolving these issues. While many states have created statutory mandates and programs that theoretically address these concerns, in many cases the benefits of these programs are still disproportionately distributed to more affluent communities.[104] To effectively stop the cycle of energy injustice, decision-makers must look to these cases for guidance.

This Part will explore several notable examples of states and local governments that have implemented programs to address energy justice issues, and the unique features these initiatives have employed in their attempt to disperse the benefits of renewable energy

-X8NF]; *infra* Part III.

102. McCauley et al., *supra* note 19.

103. *See, e.g.*, *About the Initiative for Energy Justice*, INITIATIVE FOR ENERGY JUST. https://iejusa.org/about [https://perma.cc/AZ2U-3NZH] (describing the Initiative for Energy Justice's mission, a coalition cofounded by Shalanda Baker, to provide law and policy resources to advocates and policymakers in order to promote an equitable transition to clean energy); Raimi, *supra* note 6.

104. *See supra* notes 8–12 and accompanying text.

amongst more disadvantaged communities. Additionally, this Part will highlight any shortcomings that have become apparent during the implementation of these initiatives, how these issues have been addressed, and what issues remain unresolved. Section A explores state-led energy justice initiatives, including an in-depth look at California's renewable energy and efficiency policies, and several state and local electric vehicle access and charging projects. Section B then considers utility-focused initiatives, describing a distributed energy resources project in Chicago, Illinois.

A. STATE-LED ENERGY INITIATIVES

Several states have developed programs that target energy justice issues while likewise promoting renewable energy expansion and sustainable development. Generally, these initiatives attempt to distribute the social and economic benefits of renewable energy expansion, like lower energy costs, cleaner air, increased access to environmentally conscious transportation options, and other sustainability-focused innovations, more equitably among state residents.

1. Solar Panels & Weatherization Programs in California

California is often applauded by the environmental community for being a trailblazer in the field of renewable energy and climate policy.[105] As former Governor Arnold Schwarzenegger noted at a celebration marking a huge milestone for the state's solar industry, "California is leading the way to a clean energy future."[106] In 2006, when the California Solar Initiative (CSI) was created by the passing of Senate Bill 1 (SB 1) at the encouragement of then-Governor Schwarzenegger, he hoped to put solar panels on the roofs of one million buildings across the state.[107] In 2019, that goal was

105. *See, e.g.*, David Roberts, *How California Became Far More Energy-Efficient than the Rest of the Country*, VOX (May 31, 2019), https://www.vox.com/energy-and-environment/2019/5/31/18646906/climate-change-california-energy-efficiency [https://perma.cc/4SAY-85EL]; Maria Stamas & Isaac Sevier, *California Takes 5 Steps Toward Energy Equity*, NRDC (Jan. 9, 2018), https://www.nrdc.org/experts/isaac-sevier/california-takes-5-steps-toward-energy-equity [https://perma.cc/3JFD-LG67].

106. *See* Kelsey Misbrener, *California Celebrates 1 Million Solar Roofs: Industry Advocates Set New Goal for Storage*, SOLAR POWER WORLD (Dec. 13, 2019), https://www.solarpowerworldonline.com/2019/12/california-solar-industry-celebrates-1-million-solar-roofs-sets-new-goal-for-storage [https://perma.cc/LWR3-ZER8].

107. *See id.* ("In 2006, then-Governor Schwarzenegger signed the Million Solar

achieved.[108] The incentive structure of the "Million Solar Roofs Initiative" functioned through rebates, with $3 billion ultimately being set aside for small-scale solar projects.[109] The success of this initiative exceeded expectations, and by 2019, California had met its original target to build three gigawatts of rooftop solar throughout the state, three times over.[110] This initiative has also been credited with creating over 77,000 jobs in the state's energy sector.[111]

Despite the success of SB 1's solar program, critics of rooftop solar projects have argued that California's rooftop initiative represented a "waste of resources" in comparison to large-scale solar farms.[112] Some experts also argue that solar-friendly electricity rate structures allow rooftop solar customers to avoid paying their fair share of the costs of energy generation.[113] Additionally, California's

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Roofs Initiative into law, which set a goal of building one million solar energy systems on homes, schools, farms, and businesses throughout the state."); Stephen Lacey, *The End of a Solar Era: The Legacy of the California Solar Initiative*, GREEN TECH MEDIA (Nov. 4, 2014), https://www.greentechmedia.com/articles/read/the-legacy-of-the-california-solar-initiative [https://perma.cc/7JBW-HL34]; *California Solar Initiative (CSI)*, CAL. PUB. UTILS. COMM'N, https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative [https://perma.cc/MU6D-AMPC].

108. Misbrener, *supra* note 106.

109. Sammy Roth, *California Now Has 1 Million Solar Roofs. Are 1 Million Batteries Next?*, L.A. TIMES (Dec. 12, 2019), https://www.latimes.com/environment/story/2019-12-12/california-clean-energy-milestone-1-million-solar-roofs (discussing the success of the solar rebates, former Governor Schwarzenegger explained that, "[e]xactly what we predicted would happen did happen, which is that the price of solar came down. So now we don't need any more subsidies").

110. *See* Misbrener, *supra* note 106 (explaining that the original goal of the Million Solar Roofs Initiative was to build three gigawatts of rooftop solar in California: however, by 2019 energy customers throughout the state had installed nearly nine gigawatts of local solar energy).

111. *California Celebrates Reaching One Million Solar Roofs Milestone; New Focus on "One Million Solar Batteries" Goal*, CAL. SOLAR STORAGE ASS'N (Dec. 12, 2019), https://calssa.org/press-releases/2019/12/12/california-celebrates-reaching-one-million-solar-roofs-milestone-new-focus-on-one-million-solar-batteries-goal [https://perma.cc/68N3-ALW4].

112. Roth, *supra* note 109 (quoting James Bushnell, an energy economist at the University of California Davis); Brian H. Potts, *The Hole in the Rooftop Solar-Panel Craze*, WALL ST. J. (May 17, 2015), https://www.wsj.com/articles/the-hole-in-the-rooftop-solar-panel-craze-1431899563 [https://perma.cc/6F2T-TWGH] (arguing that the federal government should stop subsidizing the rooftop solar-panel industry because there are greener, more economic alternatives, like utility-scale solar).

113. Many states require utilities to offer a "net metering" system where the utility must pay rooftop solar customers for the excess electricity they produce and export to the grid. *See, e.g.*, Roth, *supra* note 109; Rob Nikolewski, *Southern California*

programs to subsidize rooftop solar have also been criticized for disproportionately benefiting wealthier households that tend to be higher consumers of energy.[114] In an attempt to address such concerns, the California Legislature passed Assembly Bill 2723 in 2006, requiring the California Public Utilities Commission to direct at least ten percent of CSI funds to the installation of solar energy systems on "low-income residential housing."[115]

Then in December 2017, as directed by Assembly Bill 693, the California Public Utilities Commission (CPUC) created the Solar on Multifamily Affordable Housing (SOMAH) Program which provides $100 million in annual funding to install solar projects on existing multifamily affordable housing units.[116] The goal of this bill, and the

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Edison, 2 Other Utilities Urge PUC to Vacate or Modify Solar 'Net Metering' Decision, L.A. TIMES (Mar. 8, 2016), https://www.latimes.com/business/la-fi-puc-solar-ruling-20160309-story.html; *Net Energy Metering*, CAL. PUB. UTILS. COMM'N, https://www.cpuc.ca.gov/NEM [https://perma.cc/T6A6-ZEA5] (explaining the various rate structures and eligibility requirements for the state's net metering program).

Many utilities argue that net-metering is unfair to customers without rooftop solar who must subsidize the payments to solar customers by paying higher retail rates. *See* Nikolewski, *supra* (discussing three large California utilities' opposition to net-metering policies); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 TEX. J. OIL, GAS & ENERGY L. 211, 216 (2016) ("[Net-metering] is under attack by [investor-owned utilities] who claim that it overcompensates PV production and results in PV users underpaying for their share of the fixed costs of the central grid."); Kari Lydersen, *In Milwaukee, Critics Blast We Energies Rate Proposal*, ENERGY NEWS NETWORK (Oct. 9, 2014), https://energynews.us/2014/10/09/in-milwaukee-critics-blast-we-energies-rate-proposal-wisconsin-solar [https://perma.cc/TZ2A-UEBX] (recounting a Wisconsin utility's argument during a 2014 proposed rate restructuring, that because low-income households are less likely to install solar panels, they disproportionately "subsidize" customers generating their own energy with rooftop solar).

114. *See, e.g.*, Eric Fournier, Robert Cudd, Felicia Federico & Stephanie Pincetl, *On Energy Sufficiency and the Need for New Policies to Combat Growing Inequities in the Residential Energy Sector*, 8 ELEMENTA SCI. ANTHROPOCENE 1, 1 (June 2020) (analyzing "the extent to which current inequities in per-capita energy consumption, rates of vehicle electrification, and adoption of rooftop solar PV are likely to persist under the status quo"); Sammy Roth, *California's Clean Energy Programs Are Mainly Benefiting the Rich, Study Finds*, L.A. TIMES (June 25, 2020), https://www.latimes.com/environment/newsletter/2020-06-25/will-the-rich-continue-to-be-the-main-beneficiaries-of-californias-clean-energy-future-boiling-point [https://perma.cc/2MKE-8WU9] (discussing the results of the UCLA study).

115. CAL. PUB. UTILS. COMM'N, NO. 12-11-005, DECISION EXTENDING THE MULTIFAMILY AFFORDABLE SOLAR HOUSING AND SINGLE FAMILY AFFORDABLE SOLAR HOMES PROGRAMS WITHIN THE CALIFORNIA SOLAR INITIATIVE 4 (2015).

116. *See* A.B. 693, 2015–2016 Leg., Reg. Sess. (Cal. 2015); Cal. Pub. Utils. Comm'n, Press Release, CPUC Creates $100 Million Solar for Multifamily Affordable Housing Program (Dec. 14, 2017), https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/

SOMAH Program, is to incentivize the installation of solar photovoltaic (PV) systems in disadvantaged communities throughout California, with the explicit purpose of lowering the energy bill of tenants in low-income multifamily housing.[117] This program was developed to build on California's existing solar initiative, Multifamily Affordable Solar Housing (MASH) Program, which was established in 2008 to provide solar incentives to qualifying affordable multifamily housing projects.[118] SOMAH began accepting applications in mid-2019, and as of May 2020, the program had received 317 applications, representing 81.6 megawatts of future solar capacity.[119] However, the SOMAH program is still in its early stages, and the COVID-19 pandemic has slowed its activities—as of May 2020, there were no SOMAH applicants who had completed all five discrete steps of the application process to be deemed eligible to participate in the program and receive the incentive.[120]

However, this program is not the only example of the increased focus California has placed on making climate investments that benefit "disadvantaged communities" within the state.[121] In 2012, California Senate Bill 535 (SB 535) directed the state to designate at least twenty-five percent of funds received from the state's cap-and-trade

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M201/K282/201282036.pdf [https://perma.cc/HHR5-3GS8]. *See generally* CAL. PUB. UTILS. COMM'N, NO. 14-07-002, DECISION ADOPTING IMPLEMENTATION FRAMEWORK FOR ASSEMBLY BILL 693 AND CREATING THE SOLAR ON MULTIFAMILY AFFORDABLE HOUSING PROGRAM (2017).

117. A.B. 693 § 1, 2015–2016 Leg., Reg. Sess. (Cal. 2015) (laying out the purpose of the bill); *see also The Solar on Multifamily Affordable Housing (SOMAH) Program*, CAL. PUB. UTILS. COMM'N, https://www.cpuc.ca.gov/somah [https://perma.cc/U59J-JCEZ] (explaining that the SOMAH Program was directed to develop at least 300 megawatts of solar generation capacity by the end of 2030 in order to reach this goal).

118. *CSI Multifamily Affordable Solar Housing (MASH) Program*, CAL. PUB. UTILS. COMM'N, https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative/csi-multifamily-affordable-solar-housing-program [https://perma.cc/N2L4-2V6Q].

119. *Solar on Multifamily Affordable Housing (SOMAH) Evaluation: Phase I Report*, ITRON, INC. ET AL. 1-2 (Aug. 4, 2020), https://illumeadvising.com/files/SOMAH-Phase1-Evaluation-Final-Report.pdf [https://perma.cc/8JNG-495A].

120. *Id.* at 1–4, 4–12.

121. *California Climate Investments to Benefit Disadvantaged Communities*, CAL. ENV'T PROT. AGENCY [hereinafter *Climate Investments for Disadvantaged Communities*], https://calepa.ca.gov/envjustice/ghginvest [https://perma.cc/D6MZ-GU8G] (discussing legislative initiatives "aimed at improving public health, quality of life, and economic opportunity in California's most burdened communities while reducing pollution that causes climate change").

program[122] to projects that benefit disadvantaged communities, and at least ten percent to projects located in those communities.[123] This proposal was modified in 2016 by Assembly Bill 1550 (AB 1550), which requires that at least twenty-five percent of funds from the cap-and-trade program are allocated to projects located in *and* benefitting disadvantaged communities, and at least ten percent to projects that benefit low-income households and communities.[124] Cali-

122. Under cap-and-trade law, California sets a statewide limit on sources responsible for eighty-five percent of the state's greenhouse gas emissions but allows the price of carbon to "float." *Overview of ARB Emissions Trading Program*, CAL. ENV'T PROT. AGENCY, AIR RES. BD. (Feb. 9, 2015), https://ww2.arb.ca.gov/sites/default/files/cap-and-trade/guidance/cap_trade_overview.pdf [https://perma.cc/B79H-Y4UK]; John C. Dernbach, *The Dozen Types of Legal Tools in the Deep Decarbonization Toolbox*, 39 ENERGY L.J. 313, 335–36 (2018). This differs from a "carbon tax" which designates a set price for carbon while allowing emissions levels to "float." Dernbach, *supra*.

123. *See* The California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund, S.B. 535, 2011–2012 Leg., Reg. Sess. (Cal. 2012) ("This bill would require the California [EPA] to identify disadvantaged communities for investment opportunities, as specified. The bill would require the Department of Finance, when developing a specified 3-year investment plan, to allocate 25% of the available moneys in the Greenhouse Gas Reduction Fund to projects that provide benefits to disadvantaged communities, as specified, and to allocate a minimum of 10% of the available moneys in the Greenhouse Gas Reduction Fund to projects located within disadvantaged communities, as specified."); *Climate Investments for Disadvantaged Communities, supra* note 121. In April 2017, California EPA released its list of disadvantaged communities for the purpose of SB 535, relying on a tool "that assesses census tracts in California to identify areas disproportionately burdened by and vulnerable to multiple sources of pollution" in order to make these determinations. *Id.*; CAL. ENV'T PROT. AGENCY, DESIGNATION OF DISADVANTAGED COMMUNITIES PURSUANT TO SENATE BILL 535 (DE LEÓN) 1–5 (Apr. 2017), https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf (last visited Mar. 16, 2022). This list was updated in June 2018 to include additional communities. *SB 535 Disadvantaged Communities*, CAL. OFF. OF ENV'T HEALTH HAZARD ASSESSMENT, https://oehha.ca.gov/calenviroscreen/sb535 [https://perma.cc/WY3W-5P8X]. Moreover, in October 2021, California EPA released a proposal to identify disadvantaged communities, reconsider designation practices, and issue a new designation after a public comment period. *Climate Investments for Disadvantaged Communities*, *supra* note 121; *Preliminary Designation of Disadvantaged Communities Pursuant to Senate Bill 535*, CAL. ENV'T PROT. AGENCY 1 (2021), https://calepa.ca.gov/wp-content/uploads/sites/6/2021/10/2021_CalEPA_Prelim_DAC_1018_English_a.pdf (last visited Mar. 20, 2022).

124. *See* A.B. 1550, 2015–2016 Leg., Reg. Sess. (Cal. 2016) ("This bill would instead require the investment plan to allocate (1) a minimum of 25% of the available moneys in the fund to projects located within, and benefiting individuals living in, disadvantaged communities, (2) an additional minimum of 5% to projects that benefit low-income households or to projects located within, and benefiting individuals living in, low-income communities located anywhere in the state, and (3) an addi-

fornia's greenhouse gas cap-and-trade program is the fourth largest emissions trading program in the world, having raised $12.5 billion in revenue through auctions since its launch in 2013.[125] Appropriations from this fund have supported programs that assist low-income communities in retrofitting homes and buildings and making upgrades that increase home livability and energy affordability, like replacing inefficient water heaters and windows, and installing solar generation systems.[126]

The initiatives set out in SB 535 and AB 1550, were further supported by the passing of the Clean Energy and Pollution Reduction Act (SB 350) in 2015, which established renewable energy, clean air, and greenhouse gas reduction goals for the state.[127] The bill also directed state agencies to undertake studies to identify barriers to renewable energy generation, energy efficiency and weatherization investments, and low-emission transportation options for low-income customers, and disadvantaged communities.[128] Following the pass-

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tional minimum of 5% either to projects that benefit low-income households that are outside of, but within a 1/2 mile of, disadvantaged communities, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within a 1/2 mile of, disadvantaged communities."); *Climate Investments for Disadvantaged Communities, supra* note 121; *SB 535 Disadvantaged Communities*, *supra* note 123.

125. *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds*, CAL. CLIMATE INVESTMENTS iii (Mar. 2020) [hereinafter *Cal. Climate Investment Annual Report*], https://ww2.arb.ca.gov/sites/default/files/classic//cc/capandtrade/auctionproceeds/2020_cci_annual_report.pdf [https://perma.cc/76TN-GFCW] ("The Legislature appropriates money from the Greenhouse Gas Reduction Fund (GGRF) to agencies to administer California Climate Investments programs that facilitate GHG emission reductions and provide additional economic, environmental, and public health benefits, consistent with existing legislative guidance . . . . To date, auctions have raised $12.5 billion for the GGRF. The Legislature has appropriated almost $12.7 billion in funding for California Climate Investments programs."); *California Cap and Trade*, CTR. FOR CLIMATE & ENERGY SOLS., https://www.c2es.org/content/california-cap-and-trade [https://perma.cc/9PTM-RTWP]; Patricia Leigh Brown, *Green Upgrade: How California Is Pioneering 'Energy Justice'*, YALE ENV'T 360 (July 30, 2018), https://e360.yale.edu/features/green-upgrade-how-california-is-pioneering-renewable-energy-justice-cap-and-trade [https://perma.cc/A672-LLUD].

126. *See Cal. Climate Investment Annual Report* , *supra* note 125, at 17, 119 (finding that as of 2019, Low-Income Weatherization programs had implemented $154.7 million in funding from the cap-and-trade program); Brown, *supra* note 125 (giving examples of household "retrofits").

127. *Clean Energy and Pollution Reduction Act - SB 350*, CAL. ENERGY COMM'N, https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350 [https://perma.cc/RW6W-APDC].

128. S.B. 350 § 7(a)–(d), 2015–2016 Leg., Reg. Sess. (Cal. 2015); *see also Disad-*

ing of SB 350, studies that assessed the barriers to participation in clean energy investment programs demonstrated that these investments had often failed to reach or prioritize those who suffer most from the impacts of climate change.[129] To address these disparities, the California Energy Commission suggested that the state make extensive expansions to its energy efficiency programs so as to better target low-income individuals and those living in disadvantaged communities.[130]

One such program is the California Low-Income Weatherization Program (LIWP), which was established in 2014 and is funded by California's cap-and-trade auction proceeds.[131] Since it launched in 2016, LIWP has provided both multifamily and single-family low-income households with solar PV systems, solar hot water heaters, and energy efficient upgrades at no cost.[132] Single-family homes and

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vantaged Communities, CAL. PUB. UTILITIES COMM'N, https://www.cpuc.ca.gov/discom [https://perma.cc/B8QW-C95X]; JORDAN SCAVO, SUZANNE KOROSEC, ESTEBAN GUERRERO, BILL PENNINGTON & PAMELA DOUGHMAN', CAL. ENERGY COMM'N, LOW-INCOME BARRIERS STUDY, PART A: COMMISSION FINAL REPORT, 1 (Dec. 2016), https://assets.ctfassets.net/ntcn17ss1ow9/3SqKkJoNIvts2nYVPAOmGH/fe590149c3e39e51593231dc60eeeeff/TN214830_20161215T184655_SB_350_LowIncome_Barriers_Study_Part_A__Commission_Final_Report.pdf [https://perma.cc/UR5U-J482] ("SB 350 also takes steps to ensure California's clean energy transformation includes a strong focus on equity to ensure benefits are realized by all Californians, especially those in the most vulnerable communities.").

129. *See* Stephanie Wang, *Climate Resilience Starts at Home*, CAL. HOUS. P'SHIP (Apr. 19, 2018), https://chpc.net/climate-resilience-starts-at-home [https://perma.cc/MD6X-UECB]; Scavo et al., *supra* note 128, at 1–4.

130. Scavo et al., *supra* note 128, at 4–10. These recommendations included: reducing redundancies in program eligibility requirements, expanding existing direct-install energy programs to include water-efficient appliance upgrades, piloting programs that address entire neighborhoods instead of employing a "building-by-building" approach, improving access to "energy efficiency, renewable energy, demand response, energy storage, and electric vehicle infrastructure" for multifamily housing," establishing an expert advisory committee, working with utilities to decrease barriers to access for solar installations, working with the CPUC to pilot financing programs for energy efficient upgrades, directing state programs to collaborate with community-based organizations to develop community-centric clean energy programs, as well as spurring innovation in research, development, and deployment of emerging clean energy technologies. *Id.*

131. *Id.* at 20–21.

132. *See* Brown, *supra* note 125; *California's Cap-and-Trade-Funded Low-Income Weatherization Program Multifamily: Impact Report*, CAL. HOUS. P'SHIP & ASS'N FOR ENERGY AFFORDABILITY, INC. 2 (Mar. 2019) [hereinafter *LIWP Impact Report*], https://assets.ctfassets.net/ntcn17ss1ow9/5oYh71Y5fYoDyrnEQJDVDB/9aec936b772036cf675695428a1222d6/LIWP_PolicyBrief_PRINT_HiRes-1.pdf [https://perma.cc/6YJ6-V6LA] (outlining the key accomplishments of the LIWP);

small multifamily dwellings, with fewer than twenty units, in identified disadvantaged communities,[133] are eligible to participate in LIWP, so long as residents "meet income qualifications of 60 percent of state median income or income eligibility requirements under the California Solar Initiative's Single Family Affordable Solar Homes Program."[134] Through LIWP, California has been able to assist more than 5,713 low-income renters, and over 10,000 households statewide, and residents living in LIWP participating multifamily properties have saved an average of thirty percent on their energy bills.[135]

Despite the achievements of these programs, some researchers are calling for initiatives to reduce energy demand and consumption, instead of focusing on programs like rooftop solar subsidies, and electric vehicle charging initiatives, which are aimed primarily at reducing the greenhouse gas intensity of the energy source being consumed.[136] While these market-based approaches are often politically popular and easier to implement because they do not disrupt the operation of utilities by cutting absolute consumption, they have been found to disproportionately benefit more affluent individuals.[137] Due to lower rates of property ownership, financial barriers, and limited awareness, programs that incentivize the adoption of new energy technologies—even programs that offer special assistance to low-income applicants—remain underutilized by lower-income and minority populations.[138]

Low-Income Weatherization Program, CAL. DEP'T CMTY. SERV.'S & DEV., https://www.csd.ca.gov/Pages/Low-Income-Weatherization-Program.aspx [https://perma.cc/SSF5-QZSL].

133. Disadvantaged communities are identified through the CalEnviroScreen, "a tool that assesses all census tracts in California to identify the areas disproportionately burdened by and vulnerable to multiple sources of pollution." Scavo et al., *supra* note 128, at 16 n.8.

134. Scavo et al., *supra* note 128, at 20.

135. *See LIWP Impact Report*, *supra* note 132, at 3–4 (describing that "[t]he program has committed $54.4 million to invest in 90 properties in 19 counties in disadvantaged and farmworker communities across the state" and that "[w]hen including solar PV bill savings, residents are expected to save 67% per month on their utility bills, around $70 per month per household").

136. *See* Fournier et al., *supra* note 114, at 1, 3.

137. *Id.* at 3; Roth, *supra* note 114 (speaking with Fournier about these findings).

138. *See* Fournier et al., *supra* note 114, at 3; Scavo et al., *supra* note 128, at 2, 12. Most low-income Californians are renters, and likewise, low-income Californians are thirty-nine percent more likely to live in multifamily housing than the general population. Scavo et al., *supra*, at 2. Additionally, poverty is not evenly distributed throughout California, as the highest concentrations of low-income households are in

Flaws in the basic structure of these programs might be unintentionally producing "unequal rates of program utilization" among California residents.[139] Further, since members of disadvantaged communities often lack the resources to take advantage of green energy initiatives, these initiatives can actually perpetuate inequities due to their relative inaccessibility to disadvantaged community members compared to those who live elsewhere.[140] On top of this, California's energy justice focused programs have had limited success at addressing the broad scope of energy justice issues, due to budget limitations and their restrictive eligibility requirements.[141] In order to resolve lingering disparities in access and utilization, climate and energy efficiency initiatives could be redesigned to ensure that the bulk of funding is actually going to disadvantaged communities.[142] Further, policies that focus on disincentivizing excessive consumption, rather than solely increasing efficiency, would remove the

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the San Joaquin Valley and some areas of Northern California. Scavo et al., *supra*, at 12.

139. Fournier et al., *supra* note 114, at 8.

140. *See id.* ("[Disadvantaged community] members are known to be inherently more limited than their non-DAC counterparts in terms of their available time, attention, and capacity to take advantage of programs which are 'generally' available."); Scavo et al., *supra* note 128, at 3 ("Effective market delivery can be hampered by differing definitions of low-income or disadvantaged communities, insufficient or poorly calibrated outreach and delivery, high transaction costs imposed on low-income residents with limited time and resources, and slow rebate disbursals.").

141. Fournier et al., *supra* note 114, at 3–4. For example, the California Solar Initiative's Single Family Affordable Solar Home (SASH) program, which helps low-income households offset the costs of installing a solar system, requires that eligible households own and live in their home, have a household income that is eighty percent below the median income for the area, and live in a home that has been designated as "affordable housing" under the California Public Utilities Code. *Id.* Since 2006, the SASH program has only assisted in the installation of twenty-six MW of solar capacity statewide. *Id.* This initiative was expanded in 2013 with the addition of the Multi-Family Solar Housing (MASH) program, which allows for qualifying tenants to offset their energy consumption with solar produced onsite by receiving credits through a net metering scheme. *Id.* The MASH program is now closed to further applications, and since its initiation, only 480 projects have been completed at multi-family dwellings throughout the state, representing a total of less than forty-two MW of solar capacity. *Id.*

142. Roth, *supra* note 114. Eric Fournier, research director at UCLA's California Center for Sustainable Communities, suggests designing programs that target renters rather than homeowners, limiting subsidies and rebates to low-income households, and offering electric vehicle rebates to first-time car owners. *Id.* Fournier argues that, "[i]f your actual objective is to close these gaps between disadvantaged communities and the more affluent communities, you have to think about being strategically unequal in the extent to which these incentives are available." *Id.*

perverse incentive that currently exists for the most prolific energy consumers.[143]

2. Electric Vehicles and Charging Infrastructure

The transportation sector is currently the largest source of carbon emissions in the United States.[144] Appropriately, the transition to clean vehicles has been identified as a critical piece of environmental and climate change abatement policies.[145] Transitioning to zero-emission vehicles also has the potential to significantly decrease the negative impacts changing climate will have on marginalized communities, and the negative health consequences caused by air pollution from transportation.[146] With these objections in mind, improv-

143. *See* Fournier et al., *supra* note 114, at 2–3, 9 ("Excess consumption has many causes, but often arises from individuals choosing to meet their needs by inherently more energy intensive means, such as purchasing large, single-family homes, or by overconsumption of energy services, such as leaving the air conditioning on while the home is unoccupied.").

144. *Sources of Greenhouse Gas Emissions*, EPA, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions [https://perma.cc/3T4H-ZFF2].

145. *See supra* note 35 and accompanying text.

146. *See, e.g.*, Press Release, Office of Governor Gavin Newsom, Governor Newsom Announces California Will Phase Out Gasoline-Powered Cars & Drastically Reduce Demand for Fossil Fuel in California's Fight Against Climate Change (Sept. 23, 2020) [hereinafter *Newsom Press Release*], https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-drastically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change [https://perma.cc/M5FZ-4F33] (discussing California's planned phase out of gasoline-powered vehicle sales); Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 545–51 (2019) (exploring developments in the legal policy, technology, and economics surrounding electric vehicles and charging infrastructure); Achinthi C. Vithanage, *EV for EV: Equity and Viability in Electric Vehicle Infrastructure Law and Policy*, ABA: ENV'T, ENERGY & RES. (Apr. 1, 2020), https://www.americanbar.org/groups/environment_energy_resources/publications/natural_resources_environment/2019-20/spring/ev-ev-equity-and-viability-electric-vehicle-infrastructure-law-and-policy (referring to the important role a transition to EVs could play in addressing climate change-related injustices); David Reichmuth, *Why Is the Transition to Clean Cars by 2035 Critical? To Avoid Worsening Impacts of Climate Change and Air Pollution*, UNION CONCERNED SCIENTISTS BLOG (Sept. 25, 2020), https://blog.ucsusa.org/dave-reichmuth/why-is-the-transition-to-clean-cars-by-2035-critical-to-avoid-worsening-impacts-of-climate-change-and-air-pollution [https://perma.cc/YCU6-9K35] (discussing the necessity of cutting transportation emissions through a transition to EVs in order to combat rising temperatures). *But see* Jason M. Henderson, *EVs Are Not the Answer: A Mobility Justice Critique of Electric Vehicle Transitions*, 110 ANNALS AM. ASS'N GEOGRAPHERS 1993, 1995–99 (2020) (criticizing the reliance on the transition to EVs to achieve climate change mitigation goals); Chih-Wei Hsu & Kevin Fingerman, *Public Electric Vehicle Charger*

ing access to electric vehicles (EVs) and EV charging infrastructure has become a priority for some localities trying to achieve climate action goals.

In an executive order in September 2020, California Governor Gavin Newsom announced that the state would be phasing out gasoline-powered vehicle sales, and requiring all new passenger vehicles sold in the state to be zero-emission by 2035.[147] To support these goals, the order also requires state agencies and private partnerships to accelerate the deployment of charging infrastructure for electric vehicles, and working to bring the prices of EVs into a more attainable range for all buyers.[148] This comes in the wake of a 2018 decision by the California Public Utilities Commission which authorized $41 million in transportation electrification projects by the three largest electric utilities in the state.[149] Among these "priority pilot projects" was the installation of EV fast chargers in urban locations, and the implementation of charging infrastructure in "disadvantaged communities."[150] However, a recent study has shown that public EV charger access in California is lower in areas with below-median household incomes and in neighborhoods with majority Black and Hispanic populations.[151] Additionally, disparities in public charger

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Access Disparities Across Race and Income in California, 100 TRANSP. POL'Y 59, 59–60 (2021) (discussing the disparities in EV charging access).

147. *Newsom Press Release*, *supra* note 146 (calling the switch to zero-emission vehicles "the most impactful step [California] can take to fight climate change"); *see* Sacha Pfeiffer, *California Gov. Newsom Calls Transition to Electric Cars an 'Economic Imperative'*, NPR (Sept. 24, 2020), https://www.npr.org/2020/09/24/916625380/california-governor-on-his-order-to-ban-sale-of-new-gasoline-vehicles-by-2035 [https://perma.cc/PBL7-Y8FJ]; *see also* Jason Barbose, *Gov. Newsom's Proposal to Invest $1 Billion in ZEV Infrastructure Is a Smart Proposition*, UNION CONCERNED SCIENTISTS BLOG (Mar. 10, 2021), https://blog.ucsusa.org/jason-barbose/gov-newsoms-proposal-to-invest-1-billion-in-zev-infrastructure-is-a-smart-proposition [https://perma.cc/5WE9-9ZFM] (explaining that zero-emission vehicles include both electric vehicles and hydrogen fuel cell vehicles).

148. *See Newsom Press Release, supra* note 146; Pfeiffer, *supra* note 147.

149. Decision on the Transportation Electrification Priority Review Projects, Application of San Diego Gas & Elec. Co. (U 902E) for Approval of SB 350 Transp. Electrification Proposals, Nos. 17-01-020, 17-01-021, 17-01-022 (Cal. Pub. Utils. Comm'n Jan. 11, 2018).

150. *See supra* notes 121–123 and accompanying text.

151. *See* Hsu & Fingerman, *supra* note 146, at 59 ("Black and Hispanic majority block groups are the only race and ethnicity group that is significantly less likely to have access to any public charger in their block groups compared to the rest of the state."); Maria Gallucci, *How to Ensure Electric Cars Aren't Just for Rich People*, GRIST (Feb. 22, 2021), https://grist.org/justice/making-electric-cars-more-equitable [https://perma.cc/YAZ2-VPTA]; Yvette Clarke, Opinion, *We Need to Address the Elec-*

access were found to be more pronounced in areas with a higher proportion of multi-unit housing.[152] This is concerning as the need for public EV charging in these areas is particularly crucial given the lower likelihood that these communities have residential charger access.[153]

In Massachusetts, the transportation sector has also become an area of focus in supporting the Commonwealth's clean energy goals.[154] In September 2020, the Massachusetts Clean Energy Center (MassCEC), the quasi-public agency dedicated to developing the clean energy sector,[155] announced that $1.4 million in funding was being awarded to nine clean transportation projects aimed at increasing EV usage throughout the state.[156] This funding came from Accelerating Clean Transportation Now (ACTNow) grants, a program started by MassCEC to support a range of low-carbon transportation projects like EV car-sharing programs, and bus electrification.[157] Of

tric Vehicle Charging Divide Now, Not as an Afterthought, HILL (Feb. 24, 2021), https://thehill.com/blogs/congress-blog/energy-environment/540223-we-need-to-address-the-electric-vehicle-charging?rl=1 [https://perma.cc/ZQU4-55RQ]; *see also* Benjamin K. Sovacool, Johannes Kester, Lance Noel & Gerardo Zarazua de Rubens, *Energy Injustice and Nordic Electric Mobility: Inequality, Elitism, and Externalities in the Electrification of Vehicle-to-Grid (V2G) Transport*, 157 ECOLOGICAL ECON. 205 (2019) (discussing the distributive and procedural justice issues that are inherent in a transition to electric vehicles).

152. *See* Hsu & Fingerman, *supra* note 146, at 59.

153. *Id.*

154. *See* Press Release, Robert Fitzpatrick, Mass. Clean Energy Ctr., Baker-Polito Administration Announces $1.4 Million in Funding for Clean Transportation Projects (Sept. 18, 2020), https://www.masscec.com/about-masscec/news/baker-polito-administration-announces-14-million-funding-clean-transportation [https://perma.cc/2KBN-QNK5].

155. *See About MassCEC*, MASS. CLEAN ENERGY CTR., https://www.masscec.com/about-masscec [https://perma.cc/PT3P-EJ93]. MassCEC began operations in 2009 and is financed through the Massachusetts Renewable Energy Trust Fund, which is funded by a "systems benefit charge" paid by electric ratepayers of investor-owned utilities in the state, and the five municipal electric departments that have joined the fund. *Id.* The agency's mission is described as "accelerat[ing] the clean energy and climate solution innovation that is critical to meeting the Commonwealth's climate goals, [and] advancing Massachusetts' position as an international climate leader while growing the state's clean energy economy." *Id.*

156. *See* Fitzpatrick, *supra* note 154.

157. *See Accelerating Clean Transportation*, MASS. CLEAN ENERGY CTR., https://www.masscec.com/accelerating-clean-transportation-now-actnow [https://perma.cc/322U-JL88]; Sarah Shemkus, *Massachusetts Transportation Grants Emphasize Partnerships to Cut Emissions*, ENERGY NEWS NETWORK (Sept. 29, 2020), https://energynews.us/2020/09/29/massachusetts-transportation-grants-emphasize-partnerships-to-cut-emissions [https://perma.cc/TV5X-JXLA]; *see also*

the nine projects awarded these grants, six are specifically directed at bringing clean transportation benefits to environmental justice communities.[158] MassCEC was able to achieve this through a reduced cost-share requirement that helped to incentivize ACTNow grant applications from these communities.[159] One such program, E4TheFuture, will be Massachusetts's first income-tiered EV car-sharing program.[160] This project will deploy shared-EVs and public EV charging infrastructure to serve residents and businesses of the Roxbury community in Boston,[161] a diverse neighborhood with a large Black and immigrant population.[162]

In August of 2020, an environmental justice amendment was also added to a sweeping climate bill, known as the 2050 Roadmap,

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Sebastian Blanco, *Plenty of Good News on the Electric Bus Front*, FORBES (Sept. 18, 2020), https://www.forbes.com/sites/sebastianblanco/2020/09/18/plenty-of-good-news-on-the-electric-bus-front [ttps://perma.cc/9H2M-DL5U] (last visited Mar. 16, 2022) (discussing one of the bus fleets being electrified through an ACTNow partnership).

158. *See* Fitzpatrick, *supra* note 154 ("Massachusetts [environmental justice] communities are designated based on criteria for annual median household income, race, and English isolation.").

159. *Id.* ACTNow is not the only energy program in Massachusetts focused on environmental justice issues. The EmPower Massachusetts pilot program is another MassCEC initiative aimed at developing and implementing projects that distribute the benefits of clean energy to underserved populations in the Commonwealth, like environmental justice communities, renters, and those disproportionately impacted by environmental hazards like air pollution and extreme heat. *EmPower Massachusetts*, MASS. CLEAN ENERGY CTR., https://www.masscec.com/empower-massachusetts [https://perma.cc/QRY7-S9Y7]. In 2021 the EmPower program held stakeholder workshops in order to inform future programming and policies and identify grant applicants. *Id.* Additionally, in 2018 MassCEC awarded $75,000 grants to two microgrids planned in Boston's Chinatown and Chelsea neighborhoods. Elisa Wood, *Microgrids for Social Justice, Cities, Schools and Even Furniture*, MICROGRID KNOWLEDGE (May 25, 2018), https://microgridknowledge.com/microgrids-for-social-justice-cities [https://perma.cc/325K-BRJM].

160. Carina Daniels, *Electric Car Sharing Program Receives MassCEC Award*, ALTENERGYMAG (Sept. 22, 2020), https://www.altenergymag.com/news/2020/09/22/electric-car-sharing-program-receives-masscec-award/33800 [https://perma.cc/EDH2-3J4A].

161. *See id.*

162. *See* Megan Johnson, *So You Want to Live in Roxbury*, BOSTON MAG., https://www.bostonmagazine.com/property/roxbury-neighborhood-guide [https://perma.cc/A86L-NFTW]; Samuel Davis, *Roxbury*, GLOBAL BOSTON, https://globalboston.bc.edu/index.php/home/immigrant-places/roxbury [https://perma.cc/HY9B-H4QG]. In 2015 the Roxbury neighborhood was fifty-three percent Black, compared to Boston's twenty-three percent. BOSTON PLAN. & DEV. AGENCY RSCH. DIV., ROXBURY 1–2 (June 2017), http://www.bostonplans.org/getattachment/70aaac6d-0459-4b1f-b91f-fe19ba5437cc [https://perma.cc/3PGA-2YER].

currently making its way through the Massachusetts' Legislature.[163] This amendment codifies a definition of environmental justice communities based on new race, income, and language-proficiency criteria, and gives these stakeholders a more active role in the environmental assessment process for new projects with potentially significant cumulative impacts, thereby altering where large infrastructure projects like highways and new energy projects could be sited.[164] In January 2021, both the house and senate released a final compromise version of the climate bill, Senate Bill No. 2995.[165] However, when it reached the Governor's desk, instead of signing, he proposed changes to the bill, such as loosening emissions reductions goals but also strengthening language surrounding the prioritization of environmental justice communities.[166]

An energy justice issue that has also gained attention in Chicago, Illinois is the heavy concentration of EV charging stations in more affluent neighborhoods.[167] In response, the city of Chicago, and the state of Illinois have recently taken steps to increase access to charging stations for their residents.[168] In April, 2020, Chicago mayor Lori E. Lightfoot and the Chicago City Council passed the Electric Vehicle Supply-Ready Ordinance, requiring all newly constructed residential

163. Chris Van Buskirk, *Mass. House Approves Major Climate Action Bill*, WBUR (Aug. 1, 2020), https://www.wbur.org/earthwhile/2020/08/01/massachusetts-state-house-climate-action-bill [https://perma.cc/L2TS-EFHQ].

164. *See* Miriam Wasser, *Advocates Celebrate as Legislature Gets One Step Closer to Passing Environmental Justice Law*, WBUR (Aug. 3, 2020), https://www.wbur.org/earthwhile/2020/08/03/mass-house-environmental-justice [https://perma.cc/P5PN-8TLA].

165. *See* S.B. 2995, 191st Sess. (Mass. Gen. Court 2019–2020) (An Act creating a next-generation roadmap for Massachusetts climate policy); Jacob Stern, *Massachusetts Climate Bill a Important Step Forward*, SIERRA CLUB (Jan. 4, 2021), https://www.sierraclub.org/press-releases/2021/01/massachusetts-climate-bill-important-step-forward [https://perma.cc/6DYN-RQWG] (urging the Massachusetts Governor to sign the bill).

166. *See* Letter from Charles D. Baker, Governor, Commonwealth of Mass., to the Senate and House of Representatives (Feb. 7, 2021), https://d279m997dpfwgl.cloudfront.net/wp/2021/02/S9-Time-Stamped-Amendment-Letter.pdf [https://perma.cc/7Y8Q-HNP5]; Colin A. Young, *Baker Sends Climate Bill Back with Amendments*, WBUR (Feb. 7, 2021), https://www.wbur.org/earthwhile/2021/02/07/baker-sends-climate-bill-back-with-amendments [https://perma.cc/BK9H-HDB4].

167. Audrey Henderson, *In Chicago, 'Charging Deserts' Part of Racial Divide on Electric Vehicles*, ENERGY NEWS NETWORK (Dec. 14, 2020), https://energynews.us/2020/12/14/midwest/in-chicago-another-roadblock-for-would-be-ev-drivers-charging-deserts [https://perma.cc/Z46S-5NP5].

168. *Id.*

buildings with at least five units and onsite parking, and commercial properties with thirty or more parking spaces, to have EV charging stations in at least twenty percent of supplied parking spaces.[169] Similarly, the proposed Clean Energy Jobs Act (CEJA) would expand on the Future Energy Jobs Act (FEJA) that passed in 2016, and address some unresolved energy justice issues.[170] The proposed bill would create "EV Access for All," a robust vehicle electrification initiative that would support low-cost EV-sharing programs in low-income communities, and implement "carbon free last mile" programs to provide commuters with electric shuttles or cars, bikes, and scooters to improve ease of access to public transit hubs.[171] This legislation could have a significant impact on low-income communities who are dependent on public transportation, or lack the funds to benefit from personal EV ownership.

B. UTILITY-FOCUSED ENERGY INITIATIVES

While the initiatives discussed in Part II.A.1 rely heavily on property ownership, community awareness, and the adoption of new energy technology at the residential level, this Section explores utility driven initiatives meant to address energy justice issues through distributed energy solutions that can benefit all passive utility customers within a system. Distributed energy resources (DER), semi-autonomous small-scale power generators that are located within the same community where the power is being used,[172] represent a

169. Press Release, Lori E. Lightfoot, Mayor's Press Office, Chicago City Council Approves Ordinance to Increase Chicago's Electric Vehicle Readiness Citywide (Apr. 24, 2020), https://www.chicago.gov/city/en/depts/cdot/provdrs/conservation_outreachgreenprograms/news/2020/april/chicago-city-council-approves-ordinance-to-increase-chicago-s-e.html [https://perma.cc/K8MU-CGCS]. Chicago Mayor Lightfoot called the ordinance a "step toward becoming more environmentally sound through increasing the ease and accessibility for Chicago residents to own and operate Electric Vehicles." *Id.*

170. Clean Energy Jobs Act, H.B. 3624, 101st Gen. Assemb. (Ill. 2019); Kari Lydersen, *Aggressive Clean Energy Bill Would Push Illinois to 100% Renewables by 2050*, ENERGY NEWS NETWORK (Feb. 28, 2019), https://energynews.us/2019/02/28/midwest/aggressive-clean-energy-bill-would-push-illinois-to-100-renewables-by-2050 [https://perma.cc/8JTL-5NG3].

171. *Id.*; Henderson, *supra* note 167.

172. Robert Lasseter, Abbas Akhil, Chris Marnay, John Stephens, Jeff Dagle, Ross Guttromson, A. Sakis Meliopoulous, Robert Yinger & Joe Eto, *Consortium for Electric Reliability Tech. Solutions, Integration of Distributed Energy Resources: The CERTS MicroGrid Concept* 1 (Apr. 2002), https://escholarship.org/content/qt9w88z7z1/qt9w88z7z1_noSplash_394a7c3b903aebec68fdce8d79e53708.pdf [https://perma.cc/LQ9Q-QMGF] ("DER includes generators, energy storage, load control, and, for

promising option for expanding reliable energy access to marginalized communities. Microgrids are designed and operated to meet the specific needs of the community they serve and enhance local reliability for those energy users.[173] Because microgrids are usually connected to the larger conventional power grid, this makes for a more flexible system by allowing for either "islanding" or "grid-connected" operation.[174] Operating in "island mode" allows microgrid communities to generate power independently from the conventional grid, thereby increasing reliability, and decreasing energy costs to customers.[175] Microgrid technology could play a significant role in reducing U.S. reliance on GHG-intensive forms of energy generation, like coal-fired power plants, while also promoting the integration of renewable DER.[176] Additionally, microgrids have gained popularity in response to increases in extreme weather events, and other large-scale grid disruptions.[177]

In 2016, Chicago's Bronzeville neighborhood was selected for development of a community microgrid, under ComEd, the largest electric utility in the state.[178] The project began in after ComEd was

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certain classes of systems, advanced power electronic interfaces between the generators and the bulk power provider.").

173. *Id.* at 2.

174. Xiaonan Lu, Shay Bahramirad, Jianhui Wang & Chen Chen, *Bronzeville Community Microgrids: A Reliable, Resilient and Sustainable Solution for Integrated Energy Management with Distribution Systems*, 28 ELECTRICITY J. 29, 29–30 (2015).

175. *Id.*; *ComEd Bronzeville Community Microgrid Demonstrates Ability to Keep Power Flowing in Event of an Emergency*, BUS. WIRE (Apr. 17, 2019), https://www.businesswire.com/news/home/20190417005598/en/ComEd-Bronzeville-Community-Microgrid-Demonstrates-Ability-to-Keep-Power-Flowing-in-Event-of-an-Emergency [https://perma.cc/DG8R-Q8BB].

176. Shay Bahramirad, Aleksi Paaso & Daniel Kushner, *Bronzeville: Building the First Utility-Operated Microgrid Cluster*, POWER ENG'G (Nov. 22, 2018), https://www.power-eng.com/renewables/bronzeville-building-the-first-utility-operated-microgrid-cluster [https://perma.cc/5NVU-GJR5].

177. Rod Walton, *ComEd Signs Enchanted Rock to Deliver Gas-Fired Generation Supporting Microgrid Cluster Project*, POWER ENG'G (Jan. 26, 2021), https://www.power-eng.com/on-site-power/microgrids/comed-signs-enchanted-rock-to-deliver-gas-fired-generation-supporting-microgrid-cluster-project/#gref [https://perma.cc/LV2M-WQT8]; Clarion Energy Content Dirs., *ComEd Awarded $4 Million for Migrogrid Demonstration Project*, POWER ENG'G (Jan. 22, 2016), https://www.power-eng.com/renewables/comed-awarded-4-million-for-migrogrid-demonstration-project [https://perma.cc/M79S-PTS9] ("Microgrids provide power to customers without relying on the main grid, which improves grid resilience and decreases the impact of outages during power disruptions like severe weather.").

178. Jeff St. John, *The Country's First Neighborhood Microgrid Is Coming Online in Chicago*, CANARY MEDIA (Feb. 9, 2022), https://www.canarymedia.com/articles/grid-

awarded $4 million by the U.S. Department of Energy's SunShot Initiative to design and build a microgrid-integrated solar-storage technology system—a microgrid project based on solar PV generation and battery storage technology.[179] In 2017, ComEd filed with the Illinois Commerce Commission for permission to build the microgrid in Bronzeville, and to recover the costs of the $25 million project through consumer utility rates.[180] The project was proposed as a way to measure the ability of microgrids to "increase grid security and resiliency against disruptive events, such as a cyber-attack,"[181] and to create a decentralized power grid that improves reliability for customers across large geographic regions.[182] Once complete, the Bronzeville Community Microgrid (BCM) will serve 1,000 residences, businesses, and public institutions,[183] but ComEd has argued that rate recovery for the project is further justified because the BCM will act as a "distribution component" of the larger grid, and will reduce the amount of power that is lost in transit, thereby lowering the total amount of generation required to serve all customers on the grid.[184]

In 2019, in a significant proof-of-concept moment for the BCM, it successfully completed a simulated islanding test, demonstrating its ability to maintain the flow of power independently from the tradi-

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edge/the-countrys-first-neighborhood-microgrid-is-coming-online-in-chicago [https://perma.cc/2YJM-XEN4]; *see* Lu et al., *supra* note 174, at 30–31; *Company Information*, COMED, https://www.comed.com/AboutUs/Pages/CompanyInformation.aspx [https://perma.cc/GX37-W2TE].

179. Clarion Energy Content Dirs., *supra* note 177 ("The microgrid demonstration we are building in Bronzeville is a blueprint for other utility-owned microgrids around the country." (quoting ComEd president and CEO, Anne Pramaggiore)).

180. *See* Sania Khan, *ComEd Files with Illinois Regulators to Build Microgrid*, S&P GLOBAL (Jul. 31, 2017), https://www.spglobal.com/marketintelligence/en/news-insights/trending/24iJUUvHhiH17Aeg1voP8A2 [https://perma.cc/3TZB-CPXF]; Elisa Wood, *Commonwealth Edison Makes the Case for Its Bronzeville Microgrid Cluster*, MICROGRID KNOWLEDGE (Aug. 3, 2017), https://microgridknowledge.com/bronzeville-microgrid-cluster [https://perma.cc/P766-6X7C]. The Illinois Commerce Commission approved ComEd's plan to install the microgrid in February 2018. Bahramirad et al., *supra* note 176.

181. Khan, *supra* note 180 (quoting ComEd president and CEO, Anne Pramaggiore); *see* Bahramirad et al., *supra* note 176 (noting that microgrids have been identified by the Department of Energy as "necessary technology to enhance the resiliency of the electric grid from threats ranging from major weather events to cyber-terrorism").

182. *See* Wood, *supra* note 180 (describing the benefits of independent electricity generation and coordinated microgrid clusters to utility customers).

183. *See* Walton, *supra* note 177.

184. *See* Wood, *supra* note 180.

tional energy grid.[185] Microgrids are designed to allow for intentional islanding, so that in the case of a severe power outage, or during periods of high demand, the microgrid can disconnect from the main grid and rely on its distributed generators or energy storage system to meet the power demands of the local load.[186] Islanding can serve as a major barrier to the development of microgrids, so this successful demonstration marked a significant milestone for the BCM project, and for the future of widespread microgrid development.[187]

In another major step towards project completion, ComEd selected Enchanted Rock, a natural gas power company based in Houston, Texas, to provide generation services for the BCM project.[188] Partnering with Enchanted Rock helps ComEd guarantee that the BCM will be able to provide its customers with uninterrupted power in the event of a major interruption to the grid.[189] By combining the resiliency of gas-powered electricity generation with the microgrid's existing solar generation and storage technology, the BCM aims to promote the integration of renewable energy resources minus any doubts about its ability to reliably supply power to the community and industries it serves.[190] In another exciting development, ComEd

185. *See* Aleksi Paaso, Nina Selak & Daniel Kushner, *ComEd Simulates Islanding with Its Bronzeville Community Microgrid*, T&D WORLD (July 31, 2019), https://www.tdworld.com/distributed-energy-resources/article/20972898/comed-simulates-islanding-with-its-bronzeville-community-microgrid [https://perma.cc/45LZ-NBWV].

186. *See, e.g.*, Monika Jain, Sushma Gupta, Deepika Masand, Gayatri Agnihotri & Shailendra Jain, *Real-Time Implementation of Islanded Microgrid for Remote Areas*, J. CONTROL SCI. & ENG'G 1, 1–2 (2016); Kevin Normandeau, *Microgrids, Islanding, and Energy Storage*, MICROGRID KNOWLEDGE (July 7, 2015), https://microgridknowledge.com/microgrids-islanding-and-energy-storage [https://perma.cc/C35Z-LHXW]. *See generally* Michal Malaczek, Irena Wasiak & Rozmyslaw Mienski, *Improving Quality of Supply in Small-Scale Low-Voltage Active Networks by Providing Islanded Operation Capability*, 13 IET RENEWABLE POWER GENERATION 2665 (2019).

187. Islanding testing is time-consuming and expensive to evaluate, and if unsuccessful can cause damaging power surges in the system. Normandeau, *supra* note 186.

188. Walton, *supra* note 177; *ComEd Selects Enchanted Rock for Bronzeville Community Microgrid Project*, T&D WORLD (Feb. 8, 2021), https://www.tdworld.com/distributed-energy-resources/article/21154100/comed-selects-enchanted-rock-for-bronzeville-community-microgrid-project [https://perma.cc/E8NU-KD38].

189. Walton, *supra* note 177.

190. *Id.* ("We're excited to partner with ComEd to demonstrate the ability of microgrids to keep power flowing to communities and critical infrastructure while supporting the use of renewable energy resources." (quoting Thomas McAndrew, founder and CEO of Enchanted Rock)).

announced in early 2022 that it had completed the final testing requirements for the project, "indicating that the microgrid's natural-gas-fired generators, rooftop solar systems, batteries and advanced grid-control systems can successfully disconnect and reconnect to the larger grid."[191]

Although the BCM is not the first microgrid in operation, there is still not a widely accepted approach for quantifying the benefits that these projects provide to their customers and the energy grid at large.[192] As part of the BCM project, ComEd has committed to collecting baseline measurements, and releasing annual reports to assist in the identification of project impacts, and to inform initial benefit-cost analyses.[193] "ComEd's Bronzeville project is recognized as one of the most innovative microgrid designs in the nation,"[194] and the success of this project could create the blueprint to a "cost-effective approach to modernizing the distribution system in the long run"[195] in a manner that promotes renewable resource expansion and distributes the benefits to disadvantaged communities directly at the source.

The microgrid is also only one part of ComEd's "Community of the Future" initiative which is in the process of researching how to implement smart and sustainable energy solutions in urban districts in order to increase climate resiliency and overall quality of life within these communities.[196] Since 2016, Bronzeville has served as a

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191. St. John, *supra* note 178.

192. Bahramirad et al., *supra* note 176.

193. *Id.*

194. Walton, *supra* note 177 (quoting Thomas McAndrew, founder and CEO of Enchanted Rock).

195. Wood, *supra* note 180 (quoting ComEd's vice president, Joseph Svachula).

196. *See New ComEd Smart Kiosks Bring Technology, Information to Bronzeville Residents*, CHICAGO DEFENDER (Nov. 18, 2020), https://chicagodefender.com/new-comed-smart-kiosks-bring-technology-information-to-bronzeville-residents [https://perma.cc/8GAH-26TJ] [hereinafter *ComEd Smart Kiosks*]. The "Community of the Future" initiative goes beyond climate resiliency to include different programs that facilitate educational opportunities and increase cultural and social engagement within the community. *See id.*; *see also* Angel Idowu, *Students Tell Story of Bronzeville Neighborhood Through Their Eyes in ComEd Sponsored Film Festival*, WTTW (July 31, 2020), https://news.wttw.com/2020/07/31/students-tell-story-bronzeville-neighborhood-through-their-eyes-comed-sponsored-film [https://perma.cc/R7JW-22WL] (describing a ComEd sponsored film festival in the Bronzeville neighborhood); Adam Mahoney, *Bronzeville Mural Celebrates Legacy of Historic Community*, CHI. SUN-TIMES (Sept. 24, 2020), https://chicago.suntimes.com/2020/9/24/21454777/bronzeville-mural-celebrates-legacy-innovation [https://perma.cc/BFF7-ZZE3] ("The initiative works to build neighborhoods where residents and businesses can 'enjoy savings, sustainability, and innovative products that make

guinea pig in ComEd's experiment to create "the greenest and most connected communit[y] in the nation."[197] ComEd has also been leading a job training program aimed at increasing job opportunities for minority communities in Chicago, which provides training related to construction and technology installation for microgrid projects.[198]

As promising as this sounds, ComEd's efforts in Bronzeville raise questions about the role that electric utilities could and should play in promoting the adoption of smart grid technologies or even implementing solutions to complex social issues.[199] Investor-owned utilities (IOUs), like ComEd, serve nearly three-quarters of electric utility customers in the United States.[200] Because IOUs issue stock owned by shareholders, they are incentivized to focus on capital investments that will earn returns for those shareholders, sometimes to the detriment of the public interest.[201] One could have valid concerns that entrusting a for-profit entity with the task of remedying energy injustices could put disadvantaged communities at risk for future exploitation. This is further complicated by the ComEd Patronage

their lives easier,' according to a ComEd news release.").

197. *See ComEd Smart Kiosks*, *supra* note 196 (quoting a ComEd press release); St. John, *supra* note 178 (discussing ComEd's plan to integrate EV chargers and EV rideshare services into the Bronzeville neighborhood by 2023).

198. Bahramirad et al., *supra* note 176 ("As part of the Future Energy Jobs Act, an additional $30 million funding was secured to develop the workforce still further, particularly for solar pipeline training programs, craft apprenticeships, and multicultural training for individuals from diverse and/or underserved backgrounds.").

199. *See* Emily Chang, Shay Bahramirad & Daniel Kushner, *Electric Utilities' Role in Promoting and Advancing Smart City Solutions*, IEEE CONF. ON TECH. FOR SUSTAINABILITY (2020). Disputes over how much of a microgrid's infrastructure should be owned by utilities that can pass the development costs onto customers, and how much should be left open to competiton from outside parties has hindered attempts to create microgrid programs in other states like California. St. John, *supra* note 178.

200. *See Investor-Owned Utilities Served 72% of U.S. Electricity Customers in 2017*, U.S. ENERGY INFO. ADMIN. (Aug. 15, 2019), https://www.eia.gov/todayinenergy/detail.php?id=40913 [https://perma.cc/76YU-4PVC]; *Company Information*, *supra* note 178 (noting that ComEd is a unit of Exelon Corporation—a Fortune 100 energy company with approximately 10 million electricity and natural gas customers).

201. *See Investor-Owned Utilities*, *supra* note 200; Inara Scott, *Applying Stakeholder Theory to Utility Regulation*, 42 ECOLOGY L. CURRENTS 1, 5 (2015); David Roberts, *The Simple Reason Most Power Utilities Suck*, VOX (Sept. 4, 2017), https://www.vox.com/2016/6/29/12038074/power-utilities-suck [https://perma.cc/JT3M-WK8X] (discussing how cost-of-service regulation (COSR) rewards utilities for infrastructure investments but disincentivizes innovation that reduces overall demand for grid power and new infrastructure). While third-party-owned, distributed solutions pose the lowest total cost for the highest total societal benefit, those solutions don't make financial sense under COSR, meaning that inevitably utility shareholder interests are misaligned with the public interest. *See* Roberts, *supra*.

Scandal that came to light in 2019 and demonstrated that former ComEd executives had participated in corrupt lobbying practices as part of a multiyear scheme to bribe Illinois legislators into relaxing state regulation of ComEd's rates.[202]

While distributed energy resources represent a promising option for expanding reliable and affordable energy access to marginalized communities, placing the fate of energy justice communities in the hands of for-profit companies would come with its own pitfalls. As these types of projects become increasingly popular, decisionmakers must be mindful of these challenges and work to craft policy that protects vulnerable communities from corrupt or potentially exploitative corporate practices.

Each of the initiatives explored in this Part represent a promising model for addressing energy justice issues at the local level. The successes of these initiatives, as well as the identified gaps in their program structures provide lessons and opportunities for governments looking to implement or expand upon their own environmental justice projects. Further, these initiatives are illustrative of the kind of preexisting programs to which an influx of federal funds could meaningfully impact the ability of energy justice issues to be addressed in a community-specific manner at the state and local level. The next Part of this Note discusses how these existing projects could be expanded upon to promote energy justice on a broader scale.

III. IMPLEMENTING SWEEPING ENERGY JUSTICE INITIATIVES

While there has been some progress in recent decades regarding how energy justice issues are incorporated into programs that address climate change and the clean energy transition, there are still disparities when it comes to who is able to access these pro-

202. *See* Dave McKinney, *Breaking Down the ComEd Patronage Scandal—And What's Next for Michael Madigan*, NPR (July 20, 2020), https://www.npr.org/local/309/2020/07/20/893009659/breaking-down-the-com-ed-patronage-scandal-and-what-s-next-for-michael-madigan [https://perma.cc/4YF9-T55F]; *4 Former ComEd Executives, Lobbyists Indicted in Bribery Scandal; Accused of Trying to Curry House Speaker Michael Madigan's Favor*, CBS 2 CHI. (Nov. 19, 2002), https://chicago.cbslocal.com/2020/11/19/4-former-comed-executives-lobbyists-indicted-in-bribery-scandal [https://perma.cc/A8ZM-6Q6V] (explaining that "federal prosecutors accused ComEd of a yearslong bribery scheme that sought to curry Madigan's favor in advancing legislation relaxing state regulation of ComEd's rates by directing $1.3 million in payments to the speaker's associates").

grams and receive the associated benefits.[203] As evidenced by the energy justice initiatives described in Part II, none of these policies have been able to address the full scope of the energy justice framework.[204] This is due in large part to the fact that the current energy system lacks the infrastructure and resources needed to permanently address these inequities. An ideal solution would involve a complete overhaul of the current energy system that could eliminate the many negative externalities of energy generation and address the disproportionate financial burden that utility bills place on the poorest communities.[205] However, given the vast and complicated web of federal, state, and local laws, regulations, and policies that govern the U.S. energy system,[206] this solution seems very unlikely. An interim approach is needed to provide for vulnerable populations before the negative impacts of climate change become even more pronounced.[207] In order to create a more equitable energy system for all people in this country, there must be a more systematic and well-funded approach to distributing the benefits of the transition to renewables.

In this Part the distinct pieces of the various approaches to energy justice issues are brought together to identify a framework to which innovations in the energy justice realm can be compared, and gaps in proposed solutions can be identified. Additionally, this Part will draw on these conclusions to offer a proposal for how the U.S. could better effectuate the goals of energy justice through future legislative and policy projects. Section A brings together the common themes that appeared in the approaches to energy justice issues outlined in Part II. Section B then explores how environmental and energy justice projects could be promoted through the direct allocation of funds from the broader adoption of cap-and-trade or other car-

203. *See supra* notes 138–143, and accompanying text.

204. *See supra* Part II.A.

205. *See supra* Part I.B.

206. *See generally* ALEXANDRA B. KLASS & HANNAH J. WISEMAN, ENERGY LAW (2d ed. 2020).

207. *See, e.g.*, Michael E. Webber, *What Happened in Texas Is Only the Beginning*, UT NEWS (Mar. 2, 2021), https://news.utexas.edu/2021/03/02/what-happened-in-texas-is-only-the-beginning [https://perma.cc/TP93-36TM] (describing the impacts of the February 2021 winter storm on Texas' electric grid and how the changing climate will impact the energy grid throughout the U.S.); Ariel Cohen, *Texas Energy Crisis Is an Epic Resilience and Leadership Failure*, FORBES (Feb. 19, 2021), https://www.forbes.com/sites/arielcohen/2021/02/19/texas-energy-crisis-is-an-epic-resilience-and-leadership-failure/?sh=83136856eee8 (last visited Mar. 16, 2022).

bon-pricing systems. Finally, Section C discusses the political feasibility of further legislative progress, while taking a look into the Biden administration's current climate agenda and the hope it holds for the future of energy justice.

A. ENCOURAGING ENERGY JUSTICE AT THE STATE AND LOCAL LEVEL—WHAT IS STILL MISSING?

As noted in Part I, the core tenets of energy justice are distributional justice, procedural justice, recognition, and restorative justice.[208] When analyzing the various approaches being taken to address disparities within the energy system, it is clear that distributive justice has been the primary goal. By crafting policies that specifically contemplate disadvantaged communities, and directing funding and programs towards these individuals, law and policy makers have worked to redirect the flow of new energy technologies and the benefits of renewable energy generation towards disadvantaged populations.[209] Likewise, the critical goal of restorative justice is evident as well, as state and local legislatures have recognized the necessity of implementing policy initiatives that address the injustices that are inherent in the existing energy system, and envision a more equitable approach for the future.[210] However, there are still clear shortfalls in these approaches, which have allowed many environmental justice communities to fall through the gaps.

When it comes to procedural justice and recognition, many energy justice stakeholders are still not being prioritized.[211] It is apparent from the energy justice initiatives described in Part II that policymakers still lack the resources and funds necessary to reach all residents of disadvantaged communities. Flaws in the basic structure of many of these programs have led to unequal rates of utilization by marginalized populations.[212] Because members of these communities may lack the resources to take advantage of green energy initiatives, when programs fail to include stakeholders in the decision-making process, and to provide potential users with the necessary outreach, education, and support, these programs have been shown to perpetuate inequities due to their relative inaccessibility to less

208. *See supra* notes 21–26 and accompanying text.
209. *See* Parts II.A and II.B.
210. *Id.*
211. *See supra* notes 23–24 and accompanying text.
212. *See, e.g.*, *supra* notes 140 and 151.

affluent communities.[213] In order to resolve these lingering disparities in access and utilization, climate and energy efficiency initiatives must be redesigned to ensure that the bulk of funding is actually going to disadvantaged communities, and that this funding is being used for community-specific projects that the population in question actually wants and is able to utilize.[214] This is where federal policies, programs, and funding can be critical to assisting state and local governments in achieving energy justice goals.[215]

Financing is the primary issue that must be addressed when creating new policies to promote clean energy development and energy justice initiatives.[216] Because the largest barrier to deploying renewable energy technologies in low-income and disadvantaged communities is the upfront cost of installation,[217] energy justice initiatives need to have the financial ability to offset such costs for disadvantaged participants and support them throughout the process. Additionally, there must be sufficient funding available to reach broad swaths of communities, not only those individuals who meet strict eligibility guidelines.[218] Currently, most new energy infrastructure is funded through the electric bills that are paid to utilities, but this system has been criticized for allowing affluent utility customers to have their roof-top solar panels and smart grid investments subsidized by lower-income consumers.[219] A better system that more equitably and reliably provides for energy justice funding needs to be widely adopted.

B. EXPANDING A PROVEN APPROACH TO ENERGY JUSTICE FUNDING

Currently, the tremendous costs of dealing with the consequences of fossil fuel emissions are not being paid by those who are most responsible for the extraction, refinement, and burning of those

213. *See supra* note 140.

214. *See supra* notes 141–142.

215. *See, e.g.*, *supra* notes 95–100 and accompanying text.

216. *See* Deborah Behles, *From Dirty to Green: Increasing Energy Efficiency and Renewable Energy in Environmental Justice Communities*, 58 VILL. L. REV. 25, 60 (2013); Welton & Eisen, *supra* note 2, at 318 ("Although some federal programs subsidize energy bills, low funding levels mean that only 20–22% of eligible Americans actually receive federal funding assistance.").

217. *See* Behles, *supra* note 216, at 60; Michael P. Vandenbergh & Brooke A. Ackerly, *Climate Change: The Equity Problem*, 26 VA. ENV'T L.J. 55, 56, 62 (2008).

218. *See supra* notes 141–142.

219. *See, e.g.*, Welton & Eisen, *supra* note 2, at 321; *supra* note 113 and accompanying text.

fuels—instead, those burdens are being handed down to future generations. And while those who are relatively affluent and who live in more affluent communities are much better situated to endure the consequences of our changing climate, those who belong to more marginalized communities are likewise more vulnerable to the disastrous impacts of worsening climate change.[220] However, various market solutions exist to deal with this discrepancy through the implementation of "carbon pricing" schemes that factor in the actual social and ecological costs of these emissions, and incentivize producers and consumers to "shift away from fossil fuels, improve their energy efficiency, and invest in low-carbon technology."[221] There are two primary approaches to carbon pricing: (1) carbon taxes; and (2) emissions trading systems (ETS)—also known as a "cap-and-trade" system.[222] Ultimately, under either scheme, putting a price on emissions helps to shift the burden for the damage that carbon wreaks on society and the environment back to those who are responsible for it,[223] while simultaneously creating a steady source of funds that can

220. *See* Renee Cho, *Why Climate Change Is an Environmental Justice Issue*, COLUM. CLIMATE SCH. (Sept. 22, 2020), https://news.climate.columbia.edu/2020/09/22/climate-change-environmental-justice [https://perma.cc/WP9R-P4HC] (describing how communities of color are hardest hit by the impacts of climate change); U.S. GLOBAL CHANGE RSCH. PROG., FOURTH NATIONAL CLIMATE ASSESSMENT VOLUME II: IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES 25 (2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf [https://perma.cc/9W6G-W4BT] ("People who are already vulnerable, including lower-income and other marginalized communities, have lower capacity to prepare for and cope with extreme weather and climate-related events and are expected to experience greater impacts."). *See generally* J.B. Ruhl & Robin Kundis Craig, *4°C*, 106 MINN. L. REV. 191 (2021) (describing the far-reaching consequences of climate change disruption on ecological systems, social systems, and systems of governance).

221. Jennifer Morris, *Carbon Pricing*, MIT CLIMATE PORTAL, https://climate.mit.edu/explainers/carbon-pricing [https://perma.cc/RFE8-H2VY]; *see Pricing Carbon 101: What Is Carbon Pricing?*, CITIZENS' CLIMATE LOBBY, https://citizensclimatelobby.org/price-on-carbon [https://perma.cc/7QC4-QZ5Y].

222. Under a carbon tax approach, governments impose a fixed fee that consumers must pay for every ton of carbon they emit; while an ETS caps the total level of emissions for a group of companies or industrial plants and allows those with lower emissions to sell their extra allowances to larger emitters. Sanjay Patnaik & Kelly Kennedy, *Why the U.S. Should Establish a Carbon Price Either Through Reconciliation or Other Legislation*, BROOKINGS INST. (Oct. 7, 2021), https://www.brookings.edu/research/why-the-us-should-establish-a-carbon-price-either-through-reconciliation-or-other-legislation [https://perma.cc/7C38-GXC4]; *What Is Carbon Pricing?*, WORLD BANK, https://www.worldbank.org/en/programs/pricing-carbon [https://perma.cc/LWZ9-SUKD].

223. *What is Carbon Pricing?*, *supra* note 222; *see* Robert N. Stavins, *The Future of U.S. Carbon-Pricing Policy*, ENV'T & ENERGY POL'Y & ECON. 8 (May 16, 2019),

be used to directly aid the environmental justice communities who are not.[224]

Accordingly, energy justice goals could be achieved through the implementation of a cap-and-trade system, which automatically allocates a significant portion of revenue to an environmental and energy justice fund. Such a program could be adopted by states and local governments looking to incorporate energy justice initiatives into their energy regulations and transition plans. This solution considers the shortcomings of the current system in which energy justice issues are often overlooked and underfunded, while also emphasizing the need to adopt a solution that focuses on decreasing emissions and overall levels of energy consumption in order to promote a timely transition to renewables and adequately address climate change.[225]

In California, requiring the allocation of cap-and-trade funds to energy justice initiatives has already proven to be a successful method of improving access to the benefits of a clean energy transition.[226] Additionally, there are currently eleven states in the U.S. that participate in the Regional Greenhouse Gas Initiative (RGGI), a cap-and-trade program that was launched in 2009.[227] Together, the RGGI

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https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/working.papers/FWP_2019-02rev.0529.pdf [https://perma.cc/9FUF-CGPW] ("In principle, a regulator could ensure that emitters would internalize the damages they caused by charging a tax on each unit of pollution equal to the marginal social damages . . . .").

224. *See* Stavins, *supra* note 223, at 6 ("An important attribute of a carbon tax is that it raises revenue for the government, which can be used for a variety of beneficial public purposes . . . .").

> More than $28.3 billion in government 'carbon revenues' are currently collected each year in 40 countries and another 16 states or provinces around the world. Of those revenues, 27% ($7.8 billion) are used to subsidize 'green' spending in energy efficiency or renewable energy; 26% ($7.4 billion) go toward state general funds; and 36% ($10.1 billion) are returned to corporate or individual taxpayers through paired tax cuts or direct rebates. Cap-and-trade systems ($6.57 billion in total public revenue) earmark a larger share of revenues for 'green' spending (70%), while carbon tax systems ($21.7 billion) more commonly refund revenues or otherwise direct them towards government general funds (72% of revenues).

Jeremy Carl & David Fedor, *Tracking Global Carbon Revenues: A Survey of Carbon Taxes Versus Cap-and-Trade in the Real World*, 96 ENERGY POL'Y 50, 50 (2016).

225. *See supra* Part II.A.3.

226. *See supra* Part II.A.1; *supra* notes 122–126, 131–135 and accompanying text (describing California's cap-and-trade program and the many energy justice initiatives funded through the program).

227. This includes Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia, while Penn-

states set an enforceable limit on regional carbon pollution from power plants, and in response the power plants are allowed to sell permits for any of the emissions they are not currently producing, up to that specified limit.[228] Under cap-and-trade law, the government sets the maximum level of allowable emissions, but allows the price of carbon to "float."[229] This design rewards companies that can reduce their emissions and thus sell their excess allowances at auction, while requiring large fossil fuel powered plants to buy additional permits in order to continue operating.[230] Further, because the RGGI reduces the number of allowable permits each year, power plants must progressively reduce their carbon footprints, under pressure from the carbon market.[231] But arguably the most important element of the RGGI model, in regard to environmental and energy justice issues, is the ability of the program to allocate auction proceeds to various local initiatives.[232]

While a cap-and-trade system could become susceptible to market manipulation without appropriate oversight, this can be largely avoided through the employment of a secure and transparent system to track transactions within the market.[233] Not to mention that the traditional energy system has not proven itself to be any more immune to market manipulation.[234] Additionally, cap-and-trade regula-

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sylvania and North Carolina are currently considering joining. Bruce Ho, *The Regional Greenhouse Gas Initiative Is a Model for the Nation*, NRDC (July 14, 2021), https://www.nrdc.org/resources/regional-greenhouse-gas-initiative-model-nation [https://perma.cc/V8CK-P9SH].

228. *Id.*

229. Dernbach, *supra* note 122, at 334. This differs from a "carbon tax" which designated a set price for carbon while allowing emissions levels to "float." *Id.*

230. *See Cap and Trade Basics*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, https://www.c2es.org/content/cap-and-trade-basics [https://perma.cc/K5UL-GP74]; Ho, *supra* note 227.

231. *See* Ho, *supra* note 227. The annual average CO2 emissions from RGGI electric generation sources during the years 2016–2018 decreased by forty-eight percent from 2006–2008 levels. *Regional Greenhouse Gas Initiative (RGGI)*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, http://www.c2es.org/content/regional-greenhouse-gas-initiative-rggi [https://perma.cc/CN3D-ZRXR].

232. *See* Ho, *supra* note 227. ("Auction proceeds are used to generate local and regional economic benefits, including investments in local businesses that provide jobs for residents; weatherization of homes; upgrades of heating and air-conditioning systems; and clean, renewable energy.").

233. *See Cap and Trade Basics*, *supra* note 230.

234. *See, e.g.*, Thomas S. Mulligan, *How Enron Manipulated State's Power Market*, L.A. TIMES (May 9, 2002), https://www.latimes.com/archives/la-xpm-2002-may-09-fi-scheme9-story.html [https://perma.cc/9QRQ-K9AT] (describing the "Enron Scan-

tions have also been criticized for failing to set meaningful emission reduction targets, focusing too heavily on carbon trading over carbon reductions, and being difficult to enact.[235] However, cap-and-trade laws offer a level of flexibility that is not always possible with other forms of environmental regulation, making them an attractive option for generating funds for energy justice projects, with the added benefit of likely accelerating the greater phase-out of fossil fuels.[236]

C. POLITICAL FEASIBILITY AND THE LIKELIHOOD OF SUCCESS

Research shows that the gap is narrowing between Democrats and Republicans when it comes to opinions about the need to address climate change.[237] In fact, nearly three-quarters of Americans

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dal" and how the company was able to profit off of exploiting California's emergency price caps, and fabricating grid congestion); Ken Silverstein, *Writing the Book on Market Manipulation: Lessons from Enron's Demise*, FORBES (Apr. 15, 2015), https://www.forbes.com/sites/kensilverstein/2015/04/15/writing-the-book-on-market-manipulation-what-have-policymakers-learned-since-enron/?sh=2de3338d63fb [https://perma.cc/7PRT-VXMY] (discussing how Enron was able to manipulate the market to artificially inflate its own stock value, while avoiding FERC's suspicions, and why this lead to the company's ultimate collapse); Todd Neeley, *Iowa, Wisconsin Ethanol Plants Sue ADM: Six Ethanol Companies File New Anti-Trust Lawsuit Against Archer Daniels Midland*, PROGRESSIVE FARMER (Nov. 13, 2020), https://www.dtnpf.com/agriculture/web/ag/news/business-inputs/article/2020/11/13/six-ethanol-companies-file-new-anti [https://perma.cc/ANY9-FVUQ] (explaining why one of the nation's largest ethanol producers is being sued for allegedly manipulating the market through a multiyear scheme to artificially depress the price of ethanol and drive out competitors).

235. *See* Reuven S. Avi-Yonah & David M. Uhlmann, *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming Than Cap and Trade*, 28 STAN. ENV'T L.J. 3, 6, 8 (2009) (arguing for the benefits of carbon-taxing over cap-and-trade); *see also* Dernbach, *supra* note 122, at 318 (noting Congress's failed effort to adopt cap-and-trade legislation in 2009–2010 during the Obama administration).

236. *See also* Teusch & Van Dender, *supra* note 91 (arguing that carbon pricing should be considered a core component of economic recovery in the wake of the COVID-19 pandemic).

237. *See* Anthony Leiserowitz, Edward Maibach, Seth Rsoenthal & John Kotcher, *Politics & Global Warming, December 2020*, YALE PROGRAM ON CLIMATE CHANGE COMMC'N 31 (2021), https://climatecommunication.yale.edu/wp-content/uploads/2021/01/politics-global-warming-december-2020b.pdf [https://perma.cc/F8LY-4MLP]; Jariel Arvin, *Most Democrats and Republicans Think the Government Should Make Climate Change a Priority*, VOX (Jan. 15, 2021), https://www.vox.com/2021/1/15/22233228/democrats-republicans-view-climate-change-global-warming [https://perma.cc/J5RX-HJBX]; Jeff Brady, *'Light Years Ahead' of Their Elders, Young Republicans Push GOP on Climate Change*, NPR (Sept. 25, 2020), https://www.npr.org/2020/09/25/916238283/light-years-ahead-of-their-elders-young-republicans-push-gop-on-climate-change [https://perma.cc/D5JH-4KCQ];

support taxing corporations based on the amount of carbon emissions they produce.[238] Carbon pricing has also been approached during recent reconciliation debates, with some politicians suggesting that setting a carbon price will be necessary to fund other portions of Biden's climate agenda and ensure long-term emissions reductions.[239] Nevertheless, while President Biden has remained friendly to sweeping climate legislation and has proposed climate plans that incorporate new funding programs, incentives, and policy mandates that would address energy justice issues,[240] a carbon pricing scheme has yet to make it into a final bill. As of this writing, the passing of a federal cap-and-trade program seems almost certainly impossible.

That being said, on November 15, 2021, Biden signed the $1.2 trillion Bipartisan Infrastructure Deal (Infrastructure Investment and Jobs Act)—which the administration described as a "once-in-a-

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Cary Funk & Meg Hefferon, *U.S. Public Views on Climate and Energy*, PEW RSCH. CTR. (Nov. 25, 2019), https://www.pewresearch.org/science/2019/11/25/u-s-public-views-on-climate-and-energy [https://perma.cc/PAT5-3LBG].

238. Alec Tyson & Brian Kennedy, *Two-Thirds of Americans Think Government Should Do More on Climate*, PEW RSCH. CTR. (June 23, 2020), https://www.pewresearch.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate [https://perma.cc/3Q8M-M2DL]. In March 2021, the American Petroleum Institute even said it supported a carbon tax, although it did not say how big a carbon tax should be. Steven Mufson & Joshua Partlow, *Oil, Gas Industry Says It Will Support Carbon Pricing*, WASH. POST (Mar. 25, 2021), https://www.washingtonpost.com/climate-environment/2021/03/25/carbon-tax-biden [https://perma.cc/E35V-ZYEN].

239. Jeff Stein & Steven Mufson, *Senior Democrats' Push for Powerful Climate Tool Collides with Political Realities*, WASH. POST (Sept. 27, 2021), https://www.washingtonpost.com/climate-environment/2021/09/27/carbon-tax-biden-reconciliation [https://perma.cc/XPU8-9M76]; Patnaik & Kennedy, *supra* note 222 (noting that Senate Finance Chair Ron Wyden (D-OR) and Senator Sheldon Whitehouse (D-RI) both publicly supported the policy). A group of Senate Democrats also introduced a bill to impose tariffs on imports of carbon-intensive goods and fossil fuels equal to the domestic environmental policy costs of producing those goods in the U.S. Thornton Matheson, *Border Carbon Adjustment Without Carbon Pricing Makes Little Sense*, TAX POL'Y CTR. (Aug. 9, 2021), https://www.taxpolicycenter.org/taxvox/border-carbon-adjustment-without-carbon-pricing-makes-little-sense [https://perma.cc/US2B-55WC].

240. *See The Build Back Better Framework: President Biden's Plan to Rebuild the Middle Class*, WHITE HOUSE, https://www.whitehouse.gov/build-back-better [https://perma.cc/G9B4-ELNV]; *see also supra* notes 92, 93, 95–100 and accompanying text. It's also worth noting that a federal ETS might not even be the most desirable outcome from an environmental perspective. *See, e.g.*, *supra* note 235 and accompanying text; Richard Conniff, *The Political History of Cap and Trade*, SMITHSONIAN MAG. (Aug. 2009), https://www.smithsonianmag.com/science-nature/the-political-history-of-cap-and-trade-34711212 [https://perma.cc/7URE-KAUE] (explaining the complicated history of emissions trading systems in the U.S.).

generation investment" to "rebuild America's roads, bridges and rails, expand access to clean drinking water, ensure every American has access to high-speed internet, tackle the climate crisis, advance environmental justice, and invest in communities that have too often been left behind"[241]—into law.[242] Almost half of the $1.2 trillion bill is new spending, which will be spread out over five years to fund a range of projects such as repairing roads and bridges, expanding high-speed internet services, improving clean drinking water access, cleaning up Superfund and brownfield sites, and introducing more electric buses.[243] Specifically, $65 billion is allocated for updating the electric grid and enhancing the infrastructure necessary for delivering renewable energy, $39 billion for repairing and modernizing existing public transit lines and making them easier to access, $7.5 billion for establishing a robust nationwide network of electric vehicle chargers, and $1 billion for reconnecting communities previously separated by large infrastructure projects and highways.[244]

However, while this bill does represent a historic investment in U.S. infrastructure, it still only accounts for a fraction of the funds needed to address the country's infrastructural challenges in their entirety.[245] In order to reach a bipartisan deal, Biden had to cut back his initial $2.3 trillion proposal by more than half.[246] The remaining $550 billion in new spending that the bill provides is "not nearly enough to overcome the government's failure for decades to maintain and upgrade the country's infrastructure."[247] In fact, the ratio of

241. The *Build Back Better Framework: President Biden's Plan to Rebuild the Middle Class*, *supra* note 240.

242. Naylor & Walsh, *supra* note 101; Li Zhou, *The Bipartisan Infrastructure Law Is Both Historic and Not Nearly Enough*, VOX (Nov. 15, 2021), https://www.vox.com/22770447/infrastructure-bill-democrats-biden-water-broadband-roads-buses [https://perma.cc/KFH5-X8NF].

243. Zhou, *supra* note 242; *The Build Back Better Framework: President Biden's Plan to Rebuild the Middle Class*, *supra* note 240.

244. Zhou, *supra* note 242.

245. "The relatively decrepit state of American infrastructure acts like a tax on our economy and a drag on our well-being. It slows the movement of people and goods and reduces the quality of everyday life." David Leonhardt, *Why the Infrastructure Bill Matters*, N.Y. TIMES (Nov. 10, 2021), https://www.nytimes.com/2021/11/10/briefing/infrastructure-bill-joe-biden.html [https://perma.cc/4FZ3-6R6L].

246. Josh Boak, *Historians and Economists Say Biden's $1 Trillion Infrastructure Bill Is a Big Deal—But Not Nearly Enough*, ASSOCIATED PRESS (Nov. 15, 2021), https://fortune.com/2021/11/15/historians-economists-joe-biden-1-trillion-infrastructure-bill-big-deal-not-transformational [https://perma.cc/WYE5-MTY2].

247. *Id.*

gross domestic product (GDP) to infrastructure spending has been in steady decline in the U.S. since the 1970s, when "[t]he government began consuming more relative to its income and investing less."[248] According to Yale economist Ray Fair, in the 1950s and 60s, infrastructure spending as a percent of GDP was over one percent, while in 2019, even with an exponentially bigger economy, spending was only about 0.7%.[249] Although Fair estimates that the surge in spending from the bipartisan bill will raise this figure about 1.3% of GDP over the next five years, when up against the decades-longs shortfalls in infrastructure investments, these additional funds still only cover about ten percent of a $5.2 trillion gap.[250]

What's more, the infrastructure bill only represents a portion of Biden's overall climate agenda. While the bipartisan deal does represent a promising development in the fight for energy justice and racial equity at the federal level, it does not provide all of the benefits that were originally envisioned by its earlier iterations.[251] Much of

248. Ray C. Fair, *U.S. Infrastructure: 1929-2019*, RAY C. FAIR 27–28 (Sept. 2021), https://fairmodel.econ.yale.edu/rayfair/pdf/2019d.pdf [https://perma.cc/LPJ5-HSPN].

249. Fareed Zakaria, Opinion, *Spending on Infrastructure Might Not Be Sexy. But It's Even More Important Than You Think.*, WASH. POST (Nov. 18, 2021), https://www.washingtonpost.com/opinions/2021/11/18/spending-infrastructure-might-not-be-sexy-its-even-more-important-than-you-think [https://perma.cc/T5KL-RV6F] (citing Fair, *supra* note 248).

250. Fair, *supra* note 248, at 27 (noting that "the size of the bill is modest"); Zakaria, *supra* note 249; Boak, *supra* note 246. In contrast, the American Society of Civil Engineers estimates that it would cost the U.S. $2.6 trillion in new investment over the next 10 years, or $1.3 trillion over the next five, to bring the country's infrastructure up to snuff. Spencer Bokat-Lindell, *Biden Says His Infrastructure Law Is a 'Big Deal.' How Big?*, N.Y. TIMES (Nov. 18, 2021), https://www.nytimes.com/2021/11/18/opinion/biden-infrastructure-bill.html [https://perma.cc/G2ZE-48HF] (citing *Investment Gap 2020–2029*, AM. SOC'Y CIV. ENG'RS, https://infrastructurereportcard.org/resources/investment-gap-2020-2029 [https://perma.cc/KGT2-LRVE]).

251. *See, e.g.*, Press Release, White House, Fact Sheet: The American Jobs Plan (Mar. 31, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan [https://perma.cc/BPT2-2YE7] [hereinafter *The American Jobs Plan*]; Lauren Gambino, *How Biden's $2tn Infrastructure Plan Seeks to Achieve Racial Justice*, GUARDIAN (U.K.) (Apr. 5, 2021), https://www.theguardian.com/us-news/2021/apr/05/joe-biden-2tn-infrastructure-plan-racial-justice [https://perma.cc/T9BX-J3DG]; Brandon Tensley, *Only Time Will Tell Just How 'Big and Bold' Biden's Infrastructure Plan Is for Black Americans*, CNN (Apr. 8, 2021), https://www.cnn.com/2021/04/07/politics/biden-infrastructure-racial-justice/index.html [https://perma.cc/GHB2-2XXJ]. The American Jobs Plan, which later spun off into the $1.2 trillion bipartisan Infrastructure Investment and Jobs Act, proposed to invest $2 trillion not only in traditional infrastructure im-

the proposed funding that the administration hoped would be used to distribute the benefits of the renewable energy and green infrastructure transition more equitably to low-income, minority, and other marginalized communities, was cut from the final bill during negotiations.[252] As with any of the environmental justice programs discussed in this Note, proposals to broadly expand funding and resources for these programs is likely to face a significant uphill battle politically, and Biden's policy agenda has been no exception.[253] Hope

provement projects, like rebuilding roads and bridges, but also allocates hundreds of billions of dollars towards renewing the electric grid, retrofitting homes for increased efficiency, modernizing public transit systems, expanding the electric vehicle sector, rectifying historic racial inequities in transportation investments, and addressing the disproportionate impact of climate change on marginalized communities. *The American Jobs Plan*, *supra*. Through this expansive infrastructure agenda the Biden administration demonstrates its commitment to mitigating socio-economic disparities and "advanc[ing] racial equity in employment, housing, transportation, health care and education, while improving economic outcomes for communities of color." Gambino, *supra*.

252. *See supra* note 246 and accompanying text; Deirdre Walsh, *House Passes Stripped-Down Infrastructure Bill, Pushing Off Many of Biden's Wants*, NPR (Nov. 6, 2021), https://www.npr.org/2021/11/06/1053163025/house-passes-stripped-down-infrastructure-bill-pushing-off-many-of-bidens-wants [https://perma.cc/U39H-42KR]. "Though Biden first released his infrastructure proposal in March, months of bipartisan negotiations yielded about $800 billion in cost cuts. Lawmakers ultimately agreed to cut the infrastructure bill's investments by as much as 50% across the board." Jonathan Ponciano, *Everything in the $1.2 Trillion Infrastructure Bill: New Roads, Electric School Buses and More*, FORBES (Nov. 15, 2021), https://www.forbes.com/sites/jonathanponciano/2021/11/15/everything-in-the-12-trillion-infrastructure-bill-biden-just-signed-new-roads-electric-school-buses-and-more/?sh=1b3e9a6d161f (last visited Mar. 16, 2022).

253. From the beginning, the plan faced heavy opposition from the Right for raising corporate tax rates and focusing too heavily on renewable energy and other environmental initiatives. *See, e.g.*, Victoria Bekiempis, *Republicans Claim Biden $2tn Infrastructure Plan a Partisan Tax Hike*, GUARDIAN (U.K.) (Apr. 4, 2021), https://www.theguardian.com/us-news/2021/apr/04/biden-2tn-infrastructure-plan-republicans-senate-tax-green-new-deal [https://perma.cc/7Z9A-ECSQ]; Catherine Rampell, Opinion, *Republicans Desperate to Oppose Biden's Jobs Plan Settle on a Nonsense Reason*, WASH. POST (Apr. 15, 2021), https://www.washingtonpost.com/opinions/2021/04/15/republicans-nonsense-corporate-tax-rate-biden-infrastructure-plan [https://perma.cc/3V9A-NEHG] (discussing Republican complaints that the plan does not focus strictly enough on traditional infrastructure); Tony Romm, Mike DeBonis & Seung Min Kim, *A Bloc of Senate Republicans Prepare Their Own Infrastructure Plan as Biden Tries to Ramp Up Outreach*, WASH. POST (Apr. 14, 2021), https://www.washingtonpost.com/us-policy/2021/04/14/republicans-infrastructure-biden [https://perma.cc/ZTL4-EMAA] (explaining that some Republican Senators have put forward their own much less expansive and less costly infrastructure plan, as an alternative to Biden's proposal); *see also* Phil Mattingly, *White House Aides Prep $3 Trillion Jobs Package for Biden*, CNN (Mar. 22, 2021),

for a broader package of proposed spending on renewable energy and environmental justice initiatives now rests in the pending Build Back Better Act[254]—which has faced an onslaught of political opposition of its own.

Notably, Senator Joe Manchin of West Virginia reportedly refused to back the BBB Act due to the inclusion of a sweeping clean electricity payment program—that many considered to be "the single most effective climate policy in the bill"[255]—which would pay utility companies that increase their renewable energy supplies by at least four percent per year and fine those that do not hit this benchmark.[256] After this $150 billion "Clean Electricity Performance Program" was dropped from the budget reconciliation package due to Manchin's opposition, several Democrats moved to include a methane tax in the revised proposal, allegedly prompting Senator Manchin to declare his opposition to *any* proposition that would penalize the oil and natural gas industries.[257] As the now de facto Senate gatekeeper on energy matters, Manchin has left a few carrots in the BBB Act's climate agenda, while successfully excising any stick that could have been wielded against the fossil fuel industry.[258] As of

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https://www.cnn.com/2021/03/22/politics/white-house-jobs-spending-trillions/index.html [https://perma.cc/SUJ7-PMWY] (Senate GOP Leader Mitch McConnell described an earlier of Biden's jobs and infrastructure plan as a "so-called infrastructure proposal that might actually be a Trojan horse for massive tax hikes and other job-killing left-wing policies.").

254. *See supra* note 93 and accompanying text.

255. David Roberts (@drvolts), TWITTER (Oct. 15, 2021, 7:51 PM), https://twitter.com/drvolts/status/1449176252389068801 [https://perma.cc/PZ8J-Q2Q4].

256. Melissa Quinn & Kathryn Watson, *What's in Democrats' $1.75 Trillion Social Spending and Climate Bill?*, CBS NEWS (Nov. 18, 2021), https://www.cbsnews.com/news/bill-build-back-better-spending-bill-contents [https://perma.cc/6NT7-BV9N]; Ellen Ioanes, *Joe Manchin Won't Support a Key Climate Program. Alternatives Won't Be Enough*, VOX (Oct. 16, 2021), https://www.vox.com/2021/10/16/22729648/manchin-climate-change-reconciliation-clean-electricity-program [https://perma.cc/3GC3-YVN2].

257. Alexander Bolton, *Manchin Set to Make or Break Biden's Climate Pledge*, HILL (Nov. 15, 2021), https://thehill.com/policy/equilibrium-sustainability/581476-manchin-set-to-make-or-break-bidens-climate-pledge [https://perma.cc/W5L8-SYR5].

258. Liam Denning, Opinion, *Manchin's Climate Catchphrase Is Complete Nonsense*, BLOOMBERG (Dec. 6, 2021), https://www.bloomberg.com/opinion/articles/2021-12-06/manchin-s-climate-catchphrase-is-complete-nonsense [https://perma.cc/729Q-RM8N]; Mike Pearl, *Biden's Campaign Promises to Crack Down on Emissions Have Disappeared*, NEW REPUBLIC (Dec. 6, 2021), https://newrepublic.com/article/164609/joe-biden-climate-change-emissions-promises-build-back-better [https://perma.cc/FUB2-G566]. Such carrots include: "industrial policies proposed

this writing, there are reports that Senator Manchin no longer supports advancing even the $1.8 trillion counteroffer he sent the White House in late December 2021, following the latest breakdown in negotiations between the parties.[259] Ergo, any existing route to achieving Biden's original sweeping climate goals does not lead through Congress.[260]

Bearing all of this in mind, regional cap-and-trade programs represent the most significant greenhouse gas emission regulations that have been passed in this country to date.[261] Bolstering these initiatives with legislative mandates directing funds towards energy justice projects could have a considerable positive impact on the future of energy justice initiatives and the wellbeing of disadvantaged communities. Additionally, a similar and potentially more politically feasible solution would be to follow in the footsteps of the Massachusetts Renewable Energy Trust Fund (REFT), which was authorized by the Massachusetts Legislature in 1997 as part of the electric utility deregulation process.[262] The REFT is funded by a "systems benefit

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by Mr. Manchin that would help wean the region away from fossil fuels, including $100 billion to aid manufacturers and $25 billion for advanced manufacturing outreach, with $4 billion of the outreach funding set aside for coal-mining regions" and a "tax credit for energy investments [that] includes a generous additional subsidy for those investments that flow to communities with oil and gas workers, a closed coal mine or a shuttered coal-fired electricity generator." Jonathan Weisman, *Manchin's Choice on Build Back Better: Mine Workers or Mine Owners*, N.Y. TIMES (Jan. 10, 2022), https://www.nytimes.com/2022/01/10/us/politics/manchin-coal-miners.html [https://perma.cc/YY8Q-2LM3].

259. Jeff Stein, *Manchin's $1.8 Trillion Spending Offer Appears No Longer to Be on the Table*, WASH. POST (Dec. 9, 2022), https://www.washingtonpost.com/us-policy/2022/01/08/manchin-white-house-talks [https://perma.cc/JTK5-8QDM]; Weisman, *supra* note 258 ("At this point, the president and the lawmaker standing in his way cannot even agree on whether negotiations continue: Mr. Biden says they do, but Mr. Manchin says they do not."). *But see* Melissa Quinn, *Pelosi Says "There's an Agreement to Be Reached" with Manchin on Build Back Better*, CBS NEWS (Jan. 10, 2022), https://www.cbsnews.com/news/build-back-better-manchin-pelosi-face-the-nation [https://perma.cc/EQZ2-59MW] (describing an interview with Speaker Pelosi in which she expressed optimism about the passing of the bill).

260. *See supra* notes 92, 93, 98 and accompanying text discussing the Biden administration's earlier climate proposals.

261. *See* Chris Lau, *Bottom Line on Regional Cap-and-Trade Programs*, WORLD RES. INST. (July 14, 2009), https://www.wri.org/publication/bottom-line-regional-cap-and-trade-programs [https://perma.cc/4WFT-HKPA]; *see also* John Larsen, *Bottom Line on State and Federal Policy Roles*, WORLD RES. INST. (Aug. 29, 2008), https://www.wri.org/publication/bottom-line-state-and-federal-policy-roles [https://perma.cc/Y34D-QDAM].

262. *See About MassCEC*, *supra* note 155; *supra* Part II.A.2.

charge" that is paid by electric ratepayers of investor-owned utilities in the state, and the five municipal electric utilities that have joined the fund.[263] This renewable-energy surcharge of $0.0005 per kilowatt-hour totaled $22,784,856 in 2016 and $22,649,352 in 2017, but represented an additional cost of only $0.29 per month to each residential customer.[264] Through REFT funding, the Massachusetts Clean Energy Center is able to finance more than forty clean energy programs, including renewable technology installations and the EV initiatives discussed in Part II.A.2.[265] This could represent a more politically popular solution for some states, especially those with historically industry-friendly regulatory environments. While top-down change to the energy system would offer the most sweeping solution to justice issues, a state-by-state approach to provide additional resources to energy justice initiatives would still represent a welcome improvement.

CONCLUSION

Until the federal administration is able to truly get the ball rolling to address energy justice issues on a nationwide scale, localized projects will continue to serve as proving grounds for these initiatives. As described in Part II, there are already states and local governments that have made significant progress in addressing the many disparities that exist in the current energy system. While imperfect, these initiatives represent a path forward for localities that have yet to tackle energy justice issues within their borders. The passing of the $1.9 trillion COVID relief bill described in Part I, the Bipartisan Infrastructure Deal described in Part III, and the Biden administration's commitment to racial and social equity in its approach to the renewable energy transition and pending legislation, all demonstrate a critical shift towards directing additional funding and national attention to energy justice initiatives. However, opposition to a large-scale overhaul of the energy system has still led to much political gridlock in Congress. Hopefully this will not always be the case, but until then, states and local governments will continue to serve as both a crucial stopgap and drivers of progress within the energy justice sphere. As these authorities work to expand the physi-

263. *See About MassCEC*, *supra* note 155.

264. Off. of the State Auditor, *Overview of the Massachusetts Clean Energy Center*, MASS.GOV (June 11, 2018), https://www.mass.gov/info-details/overview-of-the-massachusetts-clean-energy-center [https://perma.cc/A68W-2585].

265. *See id.*

cal, political, and social infrastructure needed to protect and empower disadvantaged and overlooked communities, the energy justice framework will continue to serve as an invaluable roadmap for achieving these goals.