

**WHY WE SHOULD LOOK UP FOR ANSWERS TO OUR  
ENERGY QUESTIONS:  
A PROPOSAL TO SLOW IRREVERSIBLE CLIMATE  
DAMAGE AND REMEDY ENVIRONMENTAL JUSTICE  
INEQUITIES BY DECOUPLING OUR ECONOMY FROM  
OUR EMISSIONS THROUGH SOLAR ENERGY**

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INTRODUCTION

Carbon emissions contributing to rapid climate change cause a host of problems globally and domestically,<sup>1</sup> and as long as humans have employed the use of fossil fuels, our economies and emissions have been intertwined.<sup>2</sup> Today, the majority of economic activities, such as manufacturing, transportation, and energy production, generate greenhouse gas emissions that contribute to climate change.<sup>3</sup> Our historical and present-day carbon reliance has led to sea-level rise, destruction of biodiversity, and deadly global temperature increase.<sup>4</sup> We have seen and measured these effects, yet conferences, treaties, and overwhelming amounts of visual and published evidence of the dangers of climate change have scant effects on how we consume fossil fuels.<sup>5</sup> But why? Many believe it is not their problem or that it is a

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1. See generally Justin A. Johnson et al., *The Economic Case for Nature*, WORLD BANK GRP. (2021), <https://openknowledge.worldbank.org/server/api/core/bitstreams/9f0d9a3a-83ca-5c96-bd59-9b16f4e936d8/content>.

2. *Sources of Greenhouse Gas Emissions*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited May 4, 2023).

3. *Id.*

4. Johnson et al., *supra* note 1.

5. See generally Eur. Broad. Union, *Climate Journalism That Works*, EUROVISION NEWS (2023), [https://www.ebu.ch/files/live/sites/ebu/files/Publications/strategic/open/News\\_report\\_2023\\_Climate\\_Journalism.pdf](https://www.ebu.ch/files/live/sites/ebu/files/Publications/strategic/open/News_report_2023_Climate_Journalism.pdf).

problem for the world's future generations to solve.<sup>6</sup> Many discount the costs that will burden our society if we continue the status quo, both literally and mathematically.<sup>7</sup> Many believe it is unfixable.<sup>8</sup> Given this, it seems that presenting the dangers and causes of climate change in a relatable light may be the best solution to bringing about change. Perhaps the most pressing current issue humans face from our carbon-emitting practices is one that is far less widely discussed: poor air quality. Air quality problems set off by the burning of fossil fuels lead to extremely detrimental health effects that cost humans trillions annually.<sup>9</sup> However, universally, those that contribute the least to our carbon emissions experience the worst of their externalities.<sup>10</sup> Carbon emissions create poor air quality that disproportionately affects low-income communities of color, often called environmental justice (EJ) communities,<sup>11</sup> aptly leading to the plight of these communities being labeled as environmental injustices.<sup>12</sup> Humans emit carbon dioxide and other greenhouse gases because we consume energy, so in order to safeguard public health and relieve EJ communities' plight, it is imperative that we address the source of our emissions—or better yet, our electricity.<sup>13</sup> Already, albeit slowly, the future is moving towards renewable energy sources, and so is our economy.<sup>14</sup> We are in the most capable position we have ever been to undo our wrongs and prevent future injustices in our energy consumption practices, so it only makes sense that we move towards this future justly and efficiently by dislodging the status quo of energy consumption and bringing those who have suffered vastly disproportionate burdens<sup>15</sup> of our carbon

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6. *Id.*

7. *Id.*

8. *Id.*

9. *What You Need to Know About Climate Change and Air Pollution*, WORLD BANK GRP. (Sept. 1, 2022), <https://www.worldbank.org/en/news/feature/2022/09/01/what-you-need-to-know-about-climate-change-and-air-pollution#:~:text=A%20World%20Bank%20report%20estimated,to%206.1%25%20of%20global%20GDP> (last visited May 4, 2023).

10. Laura Cozzi et al., *The World's Top 1% of Emitters Produce Over 1000 Times More CO<sub>2</sub> Than the Bottom 1%*, INT'L ENERGY AGENCY (Feb. 22, 2023), <https://www.iea.org/commentaries/the-world-s-top-1-of-emitters-produce-over-1000-times-more-co2-than-the-bottom-1>; see generally *Environmental Justice Screening Report for the Clean Power Plan*, U.S. ENV'T PROT. AGENCY (2015), <https://19january2017snapshot.epa.gov/sites/production/files/2016-04/documents/ejscreencpp.pdf>.

11. *Environmental Justice Screening Report for the Clean Power Plan*, *supra* note 10.

12. *Environmental Justice*, THE WHITE HOUSE, <https://www.whitehouse.gov/environmentaljustice/> (last visited May 4, 2023); *What Causes Environmental Injustice?*, BEN CRUMP L., <https://bencrump.com/environmental-justice-lawyer/what-causes-environmental-injustice/> (last visited May 4, 2023).

13. See generally Shelley Welton, *Clean Electrification*, 88 U. COLO. L. REV. 571 (2017).

14. *U.S. Renewable Energy Consumption Surpasses Coal for the First Time in Over 130 Years*, U.S. ENERGY INFO. ADMIN. (May 28, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=43895>.

15. See generally CLIFFORD VILLA ET AL., ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION (Carolina Acad. Press 3d ed. 2020).

consumption to the forefront of our divorce from the fossil fuel era. Addressing the health threats that carbon emissions present us means we must reconsider our energy portfolio.<sup>16</sup> As already demonstrated in some communities domestically, among the best and most practical ways to veer ourselves away from the status quo is by implementing widespread solar-distributed energy resources.<sup>17</sup> This Note proposes that we should decouple our economy from our emissions by transitioning from fossil fuels to renewable energy sources and that the implementation of distributed solar energy in EJ communities best initiates that process.

Part I of this Note addresses our emissions, their sources, and the threats they create, especially for EJ communities. Part II addresses solar energy as the most feasible and appropriate option for our transition to clean energy, as well as the existing legal framework that would play a key role in our solar-powered clean energy revolution. Finally, Part III addresses which solar options are best, the programs we should strive to emulate, and other vital considerations of a *just* transition to solar energy.

## I. AN OVERVIEW OF OUR EMISSIONS AND ENVIRONMENTAL JUSTICE

The decade from 2011 to 2020 was the warmest on record, as global average temperatures reached nearly 1.1°C above pre-industrial levels in 2019 and research now suggesting that we will see a 0.2°C-per-decade increase in temperatures going forward.<sup>18</sup> Spiking temperatures create a host of problems in themselves,<sup>19</sup> such as harsher weather patterns causing both floods and droughts, wildfires, decreases in agricultural yields, and mass extinctions of species.<sup>20</sup> Earth goes through natural cycles causing temperatures to rise and fall, a planetary process known as natural variability,<sup>21</sup> but never has

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16. See Shalanda H. Baker, *Anti-Resilience: A Roadmap for Transformational Justice Within the Energy System*, 54 HARV. C.R.-C.L. L. REV. 1, 15-19 (2019).

17. Welton, *supra* note 13, at 645.

18. *Causes of Climate Change*, EUR. COMM'N, [https://climate.ec.europa.eu/climate-change/causes-climate-change\\_en](https://climate.ec.europa.eu/climate-change/causes-climate-change_en) (last visited May 4, 2023).

19. *The Effects of Climate Change*, NAT'L AERONAUTICS & SPACE AGENCY, <https://climate.nasa.gov/effects/#:~:text=Climate%20change%20has%20caused%20increased,related%20health%20impacts%20in%20cities> (last visited May 4, 2023).

20. *Billion-Dollar Disasters: Calculating the Costs*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., <https://www.ncei.noaa.gov/access/monitoring/dyk/billions-calculations>; see generally Shi-Ling Hsu, *Climate Insecurity*, 23 UTAH L. REV. 129, 141 (2023).

21. *World of Change: Global Temperature*, NAT'L AERONAUTICS & SPACE AGENCY EARTH OBSERVATORY, <https://earthobservatory.nasa.gov/world-of-change/global-temperatures> (last visited May 4, 2023).

our planet heated so rapidly.<sup>22</sup> It is because of this that we can almost solely blame these above-mentioned events, or at the very least their frequency and severity, on anthropogenic emissions.<sup>23</sup> Ironically, the temperature increases we have inflicted upon ourselves also indirectly increase emissions as we consume more and more energy to cool ourselves, and thus the cycle continues and worsens.<sup>24</sup> Temperature increases and global greenhouse gas emissions have increased proportionally, both having yet to peak.<sup>25</sup> Since 1970, carbon dioxide (CO<sub>2</sub>) emissions have increased by about 90%, with emissions from fossil fuel combustion and industrial processes contributing to roughly 78% of that increase.<sup>26</sup> Electricity generation alone accounted for 34% of all greenhouse gas emissions in 2019,<sup>27</sup> and the industry supplies 7.8 million jobs,<sup>28</sup> just under 5% of all U.S. jobs.<sup>29</sup> It is no wonder why we are drawn to fossil fuel consumption, as the technological advancements induced by such consumption afford us widespread luxuries of efficiency and employment. But in recent years, a significant shift in the sources of our electricity generation has originated from further technological advancements, namely in the realm of renewable energy.<sup>30</sup> In 2019, for the first time ever, the United States' manmade renewable energy sources produced more energy than coal, thanks in large part to the proliferation of solar and wind renewables.<sup>31</sup> This shift away from our traditional energy consumption

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22. Jason Vermes, *Earth Hasn't Been This Hot in 125,000 Years, but Scientists Say Temps Are Rising Much Faster Now*, CAN. BROAD. CORP. NEWS (Aug. 14, 2021), <https://www.cbc.ca/radio/day6/earth-as-hot-as-125-000-years-ago-election-countdown-reservation-dogs-afghanistan-under-siege-more-1.6139545/earth-hasn-t-been-this-hot-in-125-000-years-but-scientists-say-temps-are-rising-much-faster-now-1.6139550>.

23. Michael Burger et al., *The Law and Science of Climate Change Attribution*, 45 COLUM. J. ENVTL. L. 57, 61 (2020).

24. Lucas W. Davis & Paul J. Gertler, *Contribution of Air Conditioning Adoption to Future Energy Use Under Global Warming*, 112 PROC. OF THE NAT'L ACAD. OF SCIENCES 5962 (Apr. 27, 2015), <https://www.pnas.org/doi/10.1073/pnas.1423558112>.

25. *Global Greenhouse Gas Emissions Data*, U.S. ENV'T PROT. AGENCY, [https://19january2017snapshot.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data\\_.html](https://19january2017snapshot.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data_.html) (last visited Mar. 13, 2025).

26. *Id.*

27. *Global Greenhouse Gas Overview*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/ghgemissions/global-greenhouse-gas-overview> (last visited Mar. 13, 2025).

28. *2022 U.S. Energy and Employment Report Fact Sheet*, U.S. DEP'T OF ENERGY (2022), [https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20Fact%20Sheet\\_0.pdf](https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20Fact%20Sheet_0.pdf).

29. Statista Rsch. Dep't, *Seasonally Adjusted Monthly Civilian Labor Force in the US*, STATISTA (Oct. 8, 2024) <https://www.statista.com/statistics/193953/seasonally-adjusted-monthly-civilian-labor-force-in-the-us/#:~:text=U.S.%20civilian%20labor%20force%20seasonally%20adjusted%202021%2D2023&text=In%20February%202023%2C%20the%20civilian,people%20in%20the%20United%20States>.

30. *U.S. Renewable Energy Consumption Surpasses Coal for the First Time in Over 130 Years*, *supra* note 14.

31. *Id.*

practices and towards renewables signals the ushering in of a new era of energy production and, thus, a chance to adapt to it *correctly*.

### A. Air Pollution As The Primary Threat

Environmentalists have tried every method to move people to be concerned with and fight against climate change. We see images of polar bears starving,<sup>32</sup> San Francisco skies that resemble the atmosphere of Mars,<sup>33</sup> and everything in between. However, framing climate change and the critical importance of halting our activities that contribute to it in such a manner has been largely ineffective.<sup>34</sup> Addressing our collective apathy on the subject more compellingly may have yet to be achieved, which is why framing the urgency for action in a new light is necessary. Even with climate change being the “threat multiplier”<sup>35</sup> that it is, imperiling us and future generations more than any threat we have ever faced,<sup>36</sup> we need a new villain for the fight against climate change to gain traction—and no threat better suits the role than air pollution. The largest contributor to climate change, anthropogenic emissions, is also the most lethal to humans worldwide.<sup>37</sup> Specifically, the air pollution our energy consumption creates kills more humans and shortens more lifespans than any other affliction we *currently* face.<sup>38</sup> Globally, an estimated one in five deaths (roughly 18 to 21.5%) every year can be attributed to fossil fuel pollution,<sup>39</sup> meaning nearly nine million people around the globe die each year as a result of breathing in air containing particles from

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32. Stephen Leahy, *Polar Bears Really Are Starving Because of Global Warming*, *Study Shows*, NAT'L GEOGRAPHIC (Feb. 1, 2018), <https://www.nationalgeographic.com/science/article/polar-bears-starve-melting-sea-ice-global-warming-study-beaufort-sea-environment>.

33. See J.D. Morris, *California's New Largest-Ever Wildfire: North Coast's August Complex Shatters Record Set Two Years Ago*, SAN FRANCISCO CHRON. (Sept. 10, 2020, 2:00 PM), <https://www.sfchronicle.com/california-wildfires/article/North-Coast-complex-is-now-California-s-second-15554767.php>.

34. Seth Borenstein, *No Obituary for Earth: Scientists Fight Climate Doom Talk*, ASSOCIATED PRESS NEWS (Apr. 4, 2022, 12:57 PM), <https://apnews.com/article/fighting-climate-doom-d47f2ea47bc428656b7be1f48771b75d>.

35. Hsu, *supra* note 20, at 132 (citing *Climate Change Recognized as 'Threat Multiplier,' UN Security Council Debates Its Impact on Peace*, U.N. NEWS (Jan. 25, 2019), <https://news.un.org/en/story/2019/01/1031322>.)

36. See Melody Schreiber, *Addressing Climate Change Concerns in Practice*, MONITOR ON PSYCH., Mar. 1, 2021, at 31, 33.

37. Sebastian Malo, *Air Pollution is the World's Top Killer, According to New Research*, WORLD ECON. F. (Nov. 21, 2018), <https://www.weforum.org/agenda/2018/11/deadly-air-pollution-shortens-lives-by-nearly-2-years-researchers>.

38. *Id.*

39. *Fossil Fuel Air Pollution Responsible for 1 in 5 Deaths Worldwide*, UNIV. COLL. LONDON NEWS (Feb. 9, 2021), <https://www.ucl.ac.uk/news/2021/feb/fossil-fuel-air-pollution-responsible-1-5-deaths-worldwide#:~:text=Co%2Dauthor%20and%20UCL%20Associate,PM2.5%2C%20are%20well%20documented>.

burning fuels like coal, petrol, and diesel.<sup>40</sup> Three hundred and fifty thousand of those deaths occur in the United States, earning fossil fuel burning the title of the third leading cause of death in the country, behind heart disease and cancer.<sup>41</sup> This number is even more shocking considering that the respiratory diseases brought on by breathing in fossil fuel emissions both cause and exacerbate the risks of diseases like heart disease, cancer, stroke, chronic lower respiratory illnesses, liver disease, and kidney disease.<sup>42</sup> The above diseases make up six of the nine leading causes of death in the United States and altogether cause nearly two million deaths in the country annually.<sup>43</sup> Air quality problems are incessant and affect everyone, although some populations are affected more so than others regardless of their existing health.<sup>44</sup> And again, unfortunately, the ones contributing to climate change the least are the ones experiencing the worst air quality issues.<sup>45</sup>

### B. *Environmental (In)Justice*

In the United States, the roots of the term “environmental justice” (EJ) can be traced back to the civil rights movement and the environmental movement of the 1960s and 1970s.<sup>46</sup> EJ is a concept that acknowledges the intersectionality of race, class, and environmental issues and recognizes that the negative effects of environmental pollution are not evenly distributed.<sup>47</sup> The term EJ went on to become associated with communities of color and low-income communities that faced disproportionately higher environmental burdens than communities that represented persons

40. *Id.*; see also Christopher D. Ahlers, *Wood Burning, Biomass, Air Pollution, and Climate Change*, 46 ENVTL. L. 49, 51 (2016).

41. David Abel, *Burning Fossil Fuels Kills an Estimated 350,000 Americans a Year, Including 7,600 in Massachusetts, Study Finds*, BOS. GLOBE (Feb. 9, 2021), <https://www.bostonglobe.com/2021/02/09/metro/burning-fossil-fuels-kills-an-estimated-350000-people-year-study-finds/>; see also *Leading Causes of Death*, U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION: NAT'L CTR. FOR HEALTH STAT. (2023), <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.

42. *Leading Causes of Death*, *supra* note 41; see also *Air Pollution Linked to Fatty Liver Disease*, GENETIC ENG'G & BIOTECHNOLOGY NEWS (Dec. 7, 2021), [43. \*Leading Causes of Death\*, \*supra\* note 41.](https://www.genengnews.com/news/air-pollution-linked-to-fatty-liver-disease/#:~:text=Formerly%20known%20as%20nonalcoholic%20fatty,increase%20the%20risk%20of%20MAFLD; Baris Asfar et al., Air Pollution and Kidney Disease: Review of Current Evidence, 12 CLINICAL KIDNEY J. 19, 19 (2019).</a></p>
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44. 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 (2016).

45. Cozzi et al., *supra* note 10; see also *Environmental Justice Screening Report for the Clean Power Plan*, *supra* note 10.

46. Eddy F. Carter, *The American Environmental Justice Movement*, UNIV. OF TENN. AT MARTIN: INTERNET ENCYCLOPEDIA OF PHIL., <https://iep.utm.edu/enviro-j/#H1> (last visited May 4, 2023).

47. See generally Villa et al., *supra* note 15.

from a higher socioeconomic class, with areas such as Afton, North Carolina, and Northwood Manor, Texas as the faces of the EJ movement.<sup>48</sup> These communities garnered national attention for their shockingly close proximity to waste facilities that poisoned them with air pollution.<sup>49</sup> As recognition of their situations grew, so did awareness of how pervasively chronic their affliction was in countless communities throughout the country.<sup>50</sup> Sadly, but perhaps unsurprisingly, waste facilities are just *one* type of mega-polluter that plagues EJ communities. In addition to waste facilities,<sup>51</sup> power plants,<sup>52</sup> petrochemical plants,<sup>53</sup> refineries,<sup>54</sup> and manufacturing plants<sup>55</sup> have been the most significant contributors to poor air quality in EJ communities for generations.<sup>56</sup>

In the United States, African Americans are 20% more likely than the average person to die from emissions-based air pollutants.<sup>57</sup> Specifically, African Americans are roughly 9% more likely than white non-Latinos and twice as likely as all other Americans to die from these pollutants.<sup>58</sup> When considering that children below the age of twelve take two to three times as many breaths as adults,<sup>59</sup> it is easy to see how the children in EJ communities experience significantly higher risks from exposure to emissions-related air pollution than the

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48. *Id.* at 3-13; see *What is Environmental Justice?*, U.S. COMM'N ON CIVIL RIGHTS, [https://www.usccr.gov/files/pubs/envjust/ch2.htm#\\_ftnref2](https://www.usccr.gov/files/pubs/envjust/ch2.htm#_ftnref2) (last visited May 4, 2023).

49. *What is Environmental Justice?*, *supra* note 48.

50. See generally Villa et al., *supra* note 15, at 3-38.

51. Robert D. Bullard, *Environmental Justice: It's More Than Waste Facility Siting*, 77 SOC. SCI. Q. 493 (1996).

52. Kathiann M. Kowalski, *Study: Black, Low-Income Americans Face Highest Risk from Power Plant Pollution*, ENERGY NEWS NETWORK (Dec. 11, 2019), <https://energynews.us/2019/12/11/study-black-low-income-americans-face-highest-risk-from-power-plant-pollution/>.

53. Sheri Walsh, *Louisiana Residents in 'Cancer Alley' File Lawsuit to Ban New Petrochemical Plants*, UNITED PRESS INT'L (Mar. 21, 2023), [https://www.upi.com/Top\\_News/US/2023/03/21/louisiana-lawsuit-st-james-parish-chemical-plants-black-neighborhoods/2771679438794/](https://www.upi.com/Top_News/US/2023/03/21/louisiana-lawsuit-st-james-parish-chemical-plants-black-neighborhoods/2771679438794/).

54. *Fighting for Environmental Justice in Richmond, CA*, EARTHJUSTICE, <https://earthjustice.org/case/protecting-global-climate-and-community-health-from-oil-refinery-impacts> (last visited May 4, 2023).

55. Gabrielle Coppola, *How a New Jeep Factory In Detroit Turned Into a Civil Rights Fight*, BLOOMBERG NEWS (Mar. 21, 2022), <https://www.bloomberg.com/news/features/2022-03-21/stellantis-nv-s-detroit-jeep-plant-draws-ire-of-environmental-justice-activists#xj4y7vzkg>.

56. *Air Enforcement*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/enforcement/air-enforcement> (last visited May 4, 2023).

57. Maninder P. S. Thind et al., *Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography*, ENV'T. SCI. & TECH. 14010, 14013 (2019).

58. *Id.*

59. Adam Rowden, *What is a Normal Respiratory Rate Based on Your Age?*, MED. NEWS TODAY, (Jan. 4, 2023), <https://www.medicalnewstoday.com/articles/324409#how-to-measure>.

general population as well.<sup>60</sup> “[C]hildren spend more time outside, where the concentrations of pollution from traffic, powerplants, and other combustion sources are generally higher,” and before human immune systems and lungs are fully developed, exposure to these pollutants from a young age raises the possibility of much worse responses than those seen in adults from similar exposures.<sup>61</sup> Research shows a positive correlation between the likelihood of moving away from your hometown and the amount you earn,<sup>62</sup> which spells a huge problem for those from EJ communities. Exposure to air pollutants begins for these children shortly after birth and can continue well into adulthood or beyond,<sup>63</sup> as many of them never leave these communities so ravaged by air pollutants.<sup>64</sup> Just one of the respiratory risks EJ communities’ children face at alarmingly higher-than-average rates is asthma, a disease that is often caused, and always exacerbated by, exposure to emissions<sup>65</sup> and which causes repeated episodes of wheezing, breathlessness, and chest tightness.<sup>66</sup> For example, African American children visit the emergency room four times more often and die seven times more often from asthma than white children.<sup>67</sup> It is true that climate change affects all of us, but no communities suffer worse than environmental justice communities, especially so from what is causing it.<sup>68</sup> That is precisely why, as the United States moves towards renewable energy sources, the country possesses a unique opportunity to achieve co-benefits by transitioning in a way that both remedies the adverse health effects these communities face and empowers them in the future of clean energy.

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60. See generally Joel Schwartz, *Air Pollution and Children’s Health*, 113 PEDIATRICS 1037, 1037 (2004) [https://www.teamsofangers.org/publication/medical\\_journal\\_articles/air\\_pollution\\_and\\_children.pdf](https://www.teamsofangers.org/publication/medical_journal_articles/air_pollution_and_children.pdf).

61. *Id.*

62. Alvin Chang, *Those Who Leave Home, and Those Who Stay*, VOX (Jul. 25, 2018, 8:17 AM), <https://www.vox.com/policy-and-politics/2017/6/15/15757708/hometown-stay-leave>.

63. See Schwartz, *supra* note 60.

64. *What Percentage of Americans Currently Live in the Town or City Where They Grew Up?*, N. AM. MOVING SERVICES, <https://www.northamerican.com/infographics/where-they-grew-up> (last visited May 4, 2023).

65. Angelica I. Tiotiu et al., *Impact of Air Pollution on Asthma Outcomes*, 17 INT’L. J. OF ENV’T. RSCH. & PUB. HEALTH 1 (2020).

66. *About Asthma*, U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/asthma/about/index.html> (last visited Nov. 5, 2024).

67. Emily A. Benfer, *Health Justice: A Framework (And Call to Action) for the Elimination of Health Inequity and Social Injustice*, 65 AM. U. L. REV. 275, 298 (2015).

68. Douglas Fischer, *Climate Change Hits Poor Hardest in U.S.*, SCI. AM. (May 29, 2009), <https://www.scientificamerican.com/article/climate-change-hits-poor-hardest/>; see generally Rachel Morello-Frosch et al., *The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap*, UNIV. OF S. CAL. DORNSIFE: EQUITY RSCH. INST. (May 2009), <https://dornsife.usc.edu/eri/publications/the-climate-gap-inequalities-in-how-climate-change-hurts-americans-how-to-close-the-gap/>.

## II. MAKING THE SOLAR MOVEMENT HAPPEN

To re-envision our relationship with energy, we will likely need to re-envision our relationship with the planet. Living creatures require a “continuous flow of degradable energy to maintain” their functions, and almost all of that energy flows from the sun.<sup>69</sup> As far as humans are concerned, at the beginning of this energy flow that sustains all life are plants, which sustain themselves by drawing in infinitesimally small portions of the 173,000 terawatts of solar energy the Earth is bathed in annually.<sup>70</sup> Globally, humans consume roughly twenty terawatts of energy per year, which means that the sun, in an hour, provides “enough energy to supply the world for a year.”<sup>71</sup> So why is it, in this modern era where we possess the technology to harness this energy completely, of which minuscule fractions of the available supply could effectively power our entire species’ needs, that when we look for the source of our energy, we look down? For the sake of turning to renewables, particularly solar renewables, one study projects that solar energy systems could cover the electricity portion of the United States’ energy needs using only about 0.6% of the total land area of the country.<sup>72</sup> Investors in the energy industry seem to have noticed this potential as well: between 2009 and 2019, the price of solar electricity dropped by over 90%; solar now represents the best return on investment of all energy sources for new power plant developers.<sup>73</sup> As we move into the clean energy era, instead of looking down as we always have, we should instead look *up*: solar energy is the key to decoupling our economy from our emissions, as well as ending the cycle of environmental and societal wrongs for EJ communities.

Thankfully, the United States is moving at invigorating speeds toward implementing renewable energy sources as replacements for fossil fuels.<sup>74</sup> The Biden administration set a goal of achieving a 100% “carbon pollution-free power sector by 2035,” a goal that, if achieved, would see us entirely replace our fossil fuel industry in the next twelve

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69. ULRICH STEGER ET AL., *SUSTAINABLE DEVELOPMENT & INNOVATION IN THE ENERGY SECTOR* 32-33 (Springer 1st ed. 2005).

70. Peter Forbes, *Sunshine in a Bottle*, AEON MEDIA GRP. (May 5, 2016), <https://aeon.co/essays/could-we-mimic-photosynthesis-to-tap-into-the-sun-s-energy>.

71. *Id.*

72. Paul Denholm & Robert M. Margolis, *Land-Use Requirements and the Per-Capita Solar Footprint for Photovoltaic Generation in the United States*, 36 *ENERGY POLY* 3531, 3539 (2008).

73. Max Roser, *Why Did Renewables Become so Cheap so Fast?*, OUR WORLD IN DATA (Dec. 1, 2020), <https://ourworldindata.org/cheap-renewables-growth/>.

74. *Renewable Electricity Growth is Accelerating Faster than Ever Worldwide, Supporting the Emergence of the New Global Energy Economy*, INT’L ENERGY AGENCY (Dec. 1, 2021), <https://www.iea.org/news/renewable-electricity-growth-is-accelerating-faster-than-ever-worldwide-supporting-the-emergence-of-the-new-global-energy-economy>.

years.<sup>75</sup> As exciting and overdue a prospect as this is, the haste with which we make this transition creates a ticking time bomb for EJ communities.<sup>76</sup> Obviously, the faster we transition to renewable energy sources, the better—however, doing so without the proper deployment strategy risks us leaving these communities we have historically ravaged by our energy consumption practices in the dust, dooming them to the continuous cycle of energy poverty, adverse health effects, and lost opportunities.<sup>77</sup> Put simply, if average-earning and high-earning households adopt renewable energy sources at a large scale before low-income communities can, the energy burdens EJ communities face will likely rise, perhaps dramatically.<sup>78</sup> This is because when homeowners install solar panels and make their homes more energy-efficient, renters and lower-income households will have to bear more of the brunt of paying to maintain the grid—which means as solar homeowners’ bills get lower, everyone else’s could get higher.<sup>79</sup> If done correctly, or better put, justly, implementing widespread solar energy in the United States would start with elevating those worst equipped to adapt to the already-in-motion transition to renewables. And to do so, they will need a lot of help.

Bootstrapping a clean energy movement through environmental-justice-achieving measures is beginning to seem like a real possibility.<sup>80</sup> One of the pillars of environmental justice is the concept of distributive justice, which is premised on the idea that the benefits and burdens of governmentally- or privately-undertaken environmentally threatening activities are best distributed in an equitable manner.<sup>81</sup> More realistically, from where we stand today, distributive justice for EJ communities can really only be brought about through a sort of corrective justice, another foundational aspect of environmental justice, that addresses the disproportionate public

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75. *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*, THE WHITE HOUSE ARCHIVES (Apr. 22, 2021), <https://bidenwhitehouse.archives.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/>

76. Welton, *supra* note 13, at 649-52.

77. See Baker, *supra* note 16.

78. Eric D. Fournier et al., *On Energy Sufficiency and the Need for New Policies to Combat Growing Inequities in the Residential Energy Sector*, ELEMENTA: SCI. OF THE ANTHROPOCENE 1-13 (2020).

79. *How Biden’s Climate Tax Breaks Keep Some Americans Paying More Than Their Fair Share*, TIME (Apr. 13, 2023, 8:00 AM), <https://time.com/6270883/biden-climate-legislation-taxes-ira/>

80. See *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden’s Investing in America Agenda*, U.S. ENV’T PROT. AGENCY (April 19, 2023), <https://www.epa.gov/newsreleases/epa-releases-framework-implementation-greenhouse-gas-reduction-fund-part-president>.

81. See Villa et al., *supra* note 15, at 12.

health and environmental risks they face.<sup>82</sup> Putting this idea into practice would require decisionmakers to acknowledge our nation's history and shortcomings with respect to EJ communities, and for them to apply morality when distributing public resources.<sup>83</sup> After all, *Massachusetts v. EPA* was premised on *parens patriae*, the idea that the State of Massachusetts had a duty to protect its citizens from injuries (such as those brought on by climate change) that they could not protect themselves from, which gave Massachusetts' citizens the "special solicitude" they needed to have standing and bring suit.<sup>84</sup> Similarly, American codes of criminal and tort law are riddled with concepts rejecting the notion that one should not be subjected to physical, emotional, or fiscal harm for the sake of another's economic gains.<sup>85</sup> In the same vein, decisionmakers should, with their morals, decide to distribute funds to the communities most burdened by our energy production industry and, by doing so, give them a chance at breaking the cycle.<sup>86</sup> Thankfully, despite the enormity of the hurdles we have climbed and have still yet to climb in our environmental-justice-seeking clean energy transition, we are closer than we have ever been to setting EJ communities free from energy-borne afflictions.<sup>87</sup>

For the purposes of reducing emissions generated from stationary sources such as power plants, the key piece of legislation is the Clean Air Act (CAA).<sup>88</sup> Title I of the CAA authorizes the Environmental Protection Agency (EPA) to regulate and control air pollution in the United States,<sup>89</sup> and its principal line of attack against air pollution comes from the National Ambient Air Quality Standards (NAAQS) program it established.<sup>90</sup> NAAQS is a framework that allows the EPA to set and enforce air pollution controls by specifying maximum pollutant concentrations deemed to be safe for exposure over various periods of time.<sup>91</sup> Still, because they do not specify limitations that must be placed on actual sources, the standards themselves cannot

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82. *See id.* at 15-16.

83. *See id.* at 16-18.

84. *Massachusetts v. Env't Prot. Agency*, 549 U.S. 497, 539 (2007) (Roberts, C. J., dissenting).

85. *See generally* RESTATEMENT (THIRD) OF TORTS (AM. L. INST. 2010); RESTATEMENT (SECOND) OF THE LAW OF CRIMINAL LAW (AM. L. INST. 1985).

86. *See generally* Morello-Frosch et al., *supra* note 68.

87. *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden's Investing in America Agenda*, *supra* note 80; *see* West Virginia v. Env't Prot. Agency, 597 U.S. 697 (2022); *Massachusetts*, 549 U.S. 497.

88. *Summary of Clean Air Act*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/laws-regulations/summary-clean-air-act> (last visited May 4, 2023); 42 U.S.C. §§ 7401-7671(q) (2023).

89. 42 U.S.C. §§ 7401-7671(q) (2023).

90. ROBERT L. GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 396-403 (Aspen 8th ed. 2019).

91. *Id.*

constitute a complete basis for air pollution control.<sup>92</sup> Perhaps the ideal way to jumpstart the clean energy revolution would be through the EPA promulgating rules to which existing major emitters would have to adhere. These EPA regulations would make it more cost-effective for energy producers to produce renewable energy rather than nonrenewable (due to potential fines for nonadherence to stricter standards becoming too costly) or maybe push emitters to get ahead of the curve in preparation for such a costly future. Eventually, this top-down approach would make the dominos fall such that renewable energy would *have* to become the status quo for energy production. Were this process possible, *this* transition, through executive branch regulations, to renewable energy would remediate major air pollution problems throughout the country by removing millions of tons of emissions from American air every year.<sup>93</sup> But even a solution like this would risk leaving EJ communities in the wake of an expensive national transition to clean energy.<sup>94</sup>

Regardless, *Massachusetts* made the above-mentioned notion seem like a real possibility.<sup>95</sup> The Supreme Court found that the EPA had the authority to regulate emissions from motor vehicles and a duty to regulate emissions that contributed to climate change and endangered public health or welfare.<sup>96</sup> Environmentalists rejoiced over this decision, as the Court's holding could be interpreted as one requiring the EPA to regulate emissions from stationary sources like power plants;<sup>97</sup> later, the EPA attempted to do just that.<sup>98</sup> Unfortunately, the administrative and environmental law landmark decision of *West Virginia v. EPA* seemingly quelled the possibility of agency regulation being a catalytic solution for bringing about a clean energy revolution.<sup>99</sup> In a six to three decision, the Supreme Court found that the EPA's regulation of existing power plants fell under the "major questions doctrine" and that Congress did not grant the EPA authority to regulate emissions from existing plants based on "generation shifting" mechanisms through the CAA.<sup>100</sup> This extraordinary act of judicial review undermining the EPA's authority to regulate harmful air pollutants brought with it a huge setback for all agency rule-makers as well as for hopes of a more forward-thinking judicial

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92. *Id.*

93. *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks#:~:text=Trends,sequestration%20from%20the%20land%20sector> (last visited May 4, 2023).

94. *See generally* Welton, *supra* note 13.

95. *See generally Massachusetts*, 549 U.S. 497.

96. *Id.*

97. *Id.*

98. *See generally West Virginia*, 597 U.S. 697.

99. *Id.*

100. *Id.* at 697.

“agenda.”<sup>101</sup> The Inflation Reduction Act, which essentially codified *Massachusetts* and gave the EPA direct statutory authority to regulate greenhouse gas emissions,<sup>102</sup> has enabled the EPA to attempt to hurdle the Court’s *West Virginia* blocking “generation shifting” regulations in new ways, and, as of when this Note was written, the EPA has proposed *another* major effort to curb emissions from stationary sources.

Since and because of *West Virginia*, environmental and EJ advocates have recently thought that a complete overhaul of the United States’ power generation industry would effectively be left in the hands of legislators<sup>103</sup> and that a dissolution of our nation’s air pollution crisis from the federal level would require congressional action, likely via an amendment to the CAA.<sup>104</sup> However, on April 27, 2023, the EPA announced it would be proposing a new regulation to put the first federal controls on greenhouse gases from power plants, potentially compelling emitters to capture their air pollution.<sup>105</sup> The proposed rule does not mandate emitters use carbon capture equipment, but it would set caps on pollution rates that plant operators could only meet by using different technologies or significantly reducing their electric output.<sup>106</sup> Although this is progress and a step in the right direction for EJ communities’ health and wellness, even without paying mind to the inevitable forthcoming legal battles over its promulgation, this proposed rule still leaves us right where we started with respect to the energy burden and generational wealth issues the current energy regime imposes upon EJ communities.<sup>107</sup> However, political hurdles have not stopped the Biden administration from trudging forward in its fight for environmental

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101. Alice C. Hill, What Does the Supreme Court’s Decision in *West Virginia v. EPA* Mean for U.S. Action on Climate?, COUNCIL ON FOREIGN RELATIONS (Jul. 19, 2022), <https://www.cfr.org/blog/what-does-supreme-courts-decision-west-virginia-v-epa-mean-us-action-climate>.

102. Lisa Friedman, Democrats Designed the Climate Law to Be a Game Changer. Here’s How., N.Y. TIMES (Aug. 22, 2022), <https://www.nytimes.com/2022/08/22/climate/epa-supreme-court-pollution.html>; Patrick Parenteau, *The Inflation Reduction Act Doesn’t Get Around the Supreme Court’s Climate Ruling in West Virginia v. EPA, But it Does Strengthen EPA’s Future Abilities*, THE CONVERSATION (Aug. 24, 2022), <https://theconversation.com/the-inflation-reduction-act-doesnt-get-around-the-supreme-courts-climate-ruling-in-west-virginia-v-epa-but-it-does-strengthen-epas-future-abilities-189279>.

103. Friedman, *supra* note 102; Parenteau, *supra* note 102.

104. Coral Davenport & Lisa Friedman, *E.P.A. to Propose First Controls on Greenhouse Gases From Power Plants*, N.Y. TIMES (Apr. 22, 2023), <https://www.nytimes.com/2023/04/22/climate/epa-power-plants-pollution.html?smid=nytcore-ios-share&referringSource=articleShare>; Parenteau, *supra* note 102.

105. Davenport & Friedman, *supra* note 104; Parenteau, *supra* note 102.

106. Davenport & Friedman, *supra* note 104.

107. *Id.*

justices.<sup>108</sup> For example, the Biden administration in early 2023 published an executive order requiring every federal agency to address the disproportionate impact of pollution and climate change on minority and EJ communities.<sup>109</sup> This notion, on top of the already significant number of programs<sup>110</sup> the Biden administration promoted for EJ purposes, is unprecedented recognition at the federal level of the EJ crisis our nation is facing.<sup>111</sup> Of these, one particularly prominent program is Justice40, designed to transform hundreds of federal programs such that 40% of their overall benefits can be distributed within EJ communities,<sup>112</sup> and among the seven areas of Justice40's focus is investments in clean energy and energy efficiency for EJ communities.<sup>113</sup> Programs like these are exactly the sort of corrective and distributive justices required to address and rectify harms in the United States' EJ communities, and we cannot stop here.

Likely stemming from both a sense of urgency to fix the problem and a recognition of good marketing opportunities by the Biden administration, Earth Month (April) 2023 has been huge for EJ initiatives.<sup>114</sup> A massive development came on April 19, 2023, when the EPA released its framework for the implementation of the Greenhouse Gas Reduction Fund (GGRF), part of President Biden's Investing in America Agenda and plausible through funding from the Inflation Reduction Act.<sup>115</sup> Unlike the EPA's newly proposed power plant emission rule, which will be subject to legal battles,<sup>116</sup> the GGRF is a program that the Inflation Reduction Act created, meaning it can take effect without judicial intervention.<sup>117</sup> The EPA will implement GGRF

108. *FACT SHEET: President Biden Signs Executive Order to Revitalize Our Nation's Commitment to Environmental Justice for All*, THE WHITE HOUSE ARCHIVES (Apr. 21, 2023), <https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2023/04/21/fact-sheet-president-biden-signs-executive-order-to-revitalize-our-nations-commitment-to-environmental-justice-for-all/>.

109. Lisa Friedman, *Biden to Create White House Office of Environmental Justice*, N.Y. TIMES (Apr. 21, 2023), <https://www.nytimes.com/2023/04/21/climate/biden-environmental-justice.html?searchResultPosition=1>.

110. *Environmental Justice*, *supra* note 12.

111. Friedman, *supra* note 110; *Environmental Justice*, *supra* note 12.

112. *FACT SHEET: President Biden Signs Executive Order to Revitalize Our Nation's Commitment to Environmental Justice for All*, *supra* note 109.

113. *Justice40*, THE WHITE HOUSE ARCHIVES, <https://bidenwhitehouse.archives.gov/environmentaljustice/justice40/> (last visited Jun. 5, 2025).

114. Jean Chemnick, *Biden Marks Earth Day with New EJ Orders*, POLITICOPRO (Apr. 21, 2023, 6:53 AM), <https://subscriber.politicopro.com/article/eenews/2023/04/21/biden-marks-earth-day-with-new-ej-orders-00093220>.

115. *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden's Investing in America Agenda*, U.S. ENV'T PROT. AGENCY (Apr. 19, 2023), <https://www.epa.gov/newsreleases/epa-releases-framework-implementation-greenhouse-gas-reduction-fund-part-president>.

116. Davenport & Friedman, *supra* note 104.

117. *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden's Investing in America Agenda*, *supra* note 116.

and distribute the \$27 billion allocated for it through three complementary grant competitions.<sup>118</sup> Specifically, the program aims to combine government investment with private capital in financing clean energy projects that reduce pollution and energy costs, increase energy security, and create good-paying jobs in EJ communities.<sup>119</sup> GGRF is the embodiment of the most significant and meaningful federal effort ever undertaken to promote EJ communities, and has already rightfully garnered praise as “the single largest investment in clean energy and environmental justice in American history.”<sup>120</sup>

Notably, the most revolutionary aspect of GGRF is its \$7 billion “Solar for All” competition, which will provide up to sixty grants to states, tribal governments, municipalities, and nonprofits to enable them to provide millions of families in EJ communities access to residential and community solar.<sup>121</sup> With projects like GGRF and Justice40 leading the monumental and pioneering efforts the Biden administration has taken to empower EJ communities and begin our nationwide transition to clean energy in the right places, where we now stand represents the closest we have ever been to closing the climate gap and successfully balancing our society’s overall needs while elevating those we have historically left behind.<sup>122</sup> Measures like these are leveling the playing field by beginning to make a dent in our nation’s ever-resilient energy grid<sup>123</sup> and by buying EJ communities desperately needed time in their races to adapt with the rest of the nation to clean energy; with any luck, state and local governments will continue to provide initiatives for their citizens to acquire solar distributed renewables.<sup>124</sup>

### III. CHOOSING JUST SOLAR INITIATIVES

Solar energy exists at two scales. There are farms, which are large, concentrated groups of generation units that produce mass quantities of power, and there are smaller, distributed systems.<sup>125</sup> Implementing both varieties will be critical for the United States’ energy transition, but the opportunities that distributed solar energy systems present for EJ communities to be elevated from energy poverty and relieved of

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118. *Id.*

119. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*; see generally Morello-Frosch et al., *supra* note 68; *Justice40*, *supra* note 114.

123. See generally Baker, *supra* note 16.

124. Alexandra E. Dolezal, *Power to the People: Distributing the Benefits of a Clean Energy Transition Through Equitable Policy, Legislation, and Energy Justice Initiatives*, 106 MINN. L. REV. 2441, 2465 (2022).

125. Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L.J. 877, 897 (2011).

much of their air pollution afflictions are too beneficial for the country to ignore.<sup>126</sup>

Both large- and small-scale solar implementation face similar challenges with respect to regulatory, financial, and land use issues, but only large-scale projects threaten to extend the power of wealthy interests over those of EJ communities.<sup>127</sup> For the same reasons power facilities have historically been located near EJ communities, new solar farms are likely to be sited near EJ communities, as developers would likely find their projects to be most economically viable if sited on the cheapest land possible.<sup>128</sup> Although these host communities will likely benefit from decreased air pollution, an increased tax base or payments in lieu of taxes, and some job creation (assuming the developers hire locally), environmental justice concerns arise when developers site these projects in EJ communities where residents lack the money, time, and other resources needed to meaningfully lobby for land uses that better suit their community's needs.<sup>129</sup> Simply put: there exists a lack of safeguards to prevent procedural injustices in these projects' development, making large-scale renewables an unattractive option for many EJ communities.

Places such as New York and New Mexico have acknowledged these risks, and have created policies that address both environmental impacts and EJ concerns.<sup>130</sup> New York's Office of Renewable Energy Siting has initiated a siting process that designates existing or abandoned commercial use locations, such as brownfields, landfills, and abandoned properties, as those that will be considered for new renewable energy projects.<sup>131</sup> Similarly, New Mexico enacted its Energy Transition Act, which seeks to issue permits for new renewable energy projects on a grading scale that accounts for those with the lowest environmental impact.<sup>132</sup> This metric is determined by a potential site's ability to repurpose defunct coal power plant sites in coal power communities and provide jobs with comparable pay and benefits to those lost due to the abandonment of those defunct

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126. *Id.*

127. Hannah J. Wiseman, *Localizing the Green Energy Revolution*, 70 EMORY L.J. ONLINE 59, 80 (2021).

128. *Id.* at 81; Aman Azhar, *An African American Community in Florida Blocked Two Proposed Solar Farms. Then the Florida Legislature Stepped In.*, INSIDE CLIMATE NEWS (Jan. 2, 2022), <https://insideclimatenews.org/news/02012022/environmental-justice-florida-solar-preemption-legislature-desantis/>; Camille Squires, *Houston's Huge New Urban Solar Farm is a Win for Environmental Justice*, QUARTZ (Apr. 26, 2022), <https://qz.com/2158647/houston-is-building-the-larges-urban-solar-farm-in-us>.

129. Wiseman, *supra* note 128, at 95.

130. *Id.* at 90-91.

131. Michael B. Gerrard & Edward McTiernan, *New York's New Statute on Siting Renewable Energy Facilities*, 263 N.Y. L.J., 1, 2 (2020), <https://www.arnoldporter.com/-/media/files/perspectives/publications/2020/05/newyorksenvironmentallaw.pdf>.

132. H.R. 489, 54th Leg., 1st Sess. (N.M. 2019).

facilities.<sup>133</sup> Policies such as these should be a model for federal and state green energy policies, as they take into account the importance of the location of the sites as well as the negative externalities the surrounding communities face from their presence. Furthermore, as we transition to renewable energy sources, solar projects that could displace traditional fossil fuel facilities may be better served by *replacing* them on their existing sites, such that existing transmission lines can be used.<sup>134</sup> Therefore, when solar farms *are* to be implemented, federal and state green energy policies should expand mandates for the use of marginal lands, such as low-productivity farmlands or abandoned resource extraction sites. However useful and clean large solar farms are, they will almost certainly promote the same sort of energy production hierarchy ripe for exploitation that we are used to and thus should not be the standard we seek to instill for our clean energy transition.<sup>135</sup>

Conversely, distributed solar can provide more meaningful and lasting benefits to both rural and urban areas alike.<sup>136</sup> Distributed solar can be built and deployed quickly, face less consumer and political opposition than large solar farms, and have the potential to turn homes and businesses into energy and income generators that help build and sustain local economic empowerment.<sup>137</sup> In order to address past and current wrongs and provide benefits to EJ communities, government-mandated or subsidized small-scale energy projects, such as those the GGRF will help provide,<sup>138</sup> can and should be implemented *first* in low-income homes and apartments.<sup>139</sup> A homeowner, multifamily housing unit, or business in an area enabled by local regulations to implement distributed solar can have a system up and running in just a few months.<sup>140</sup> In addition to the savings distributed solar can bring to EJ communities, distributed solar reduces the burden on the grid, which reduces air pollution in these communities.<sup>141</sup> This is because many power plants exist solely to meet peak electricity demand, and with fewer consumers hooked up to the grid, these plants will sit idle, halting their emissions.<sup>142</sup> Some states are already well underway with implementing distributed solar in EJ

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133. *Id.*

134. Wiseman, *supra* note 128, at 91.

135. Michael Maruca, *From Exploitation to Equity: Building Native-Owned Renewable Energy Generation in Indian Country*, 43 WM. & MARY ENVTL. L. & POL'Y REV. 391, 418 (2019).

136. Pursley & Wiseman, *supra* note 126, at 900.

137. *Id.* at 899.

138. *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden's Investing in America Agenda*, *supra* note 116.

139. Wiseman, *supra* note 128, at 92.

140. Pursley & Wiseman, *supra* note 126, at 899.

141. *Id.* at 899-900.

142. *Id.* at 900.

communities within their borders, and seeking to follow and build off their models is our best course of action.<sup>143</sup>

### A. *Modeling Our Solar Future*

Many states and communities have begun to lead the way in destabilizing our emissions-heavy energy industry and empowering communities it has ravaged by developing EJ-focused solar initiatives that aim to provide health benefits through cleaner air, as well as economic benefits through lower energy costs and payments to consumers for the excess energy they have produced.<sup>144</sup>

Ahead of the curve of progressive trends, as usual, stands California.<sup>145</sup> In 2006, California enacted Senate Bill 1 which established the California Solar Initiative (CSI), a program that aimed to put solar panels on the roofs of one million buildings across the state.<sup>146</sup> That goal was achieved in 2019, and CSI's rebate-laden incentive structure allowed California to set aside \$3 billion for small-scale solar projects.<sup>147</sup> On top of this initiative's stimulation of \$63 billion in private investments in California-solar and its creation of over 77,000 jobs in the state's energy sector, meaning solar jobs provide employment to more Californians than the state's five largest utilities *combined*,<sup>148</sup> the additional funds from the program helped create the Solar on Multifamily Affordable Housing (SOMAH) Program.<sup>149</sup> SOMAH, at its core, is an environmental justice-oriented program, as it provides \$100 million of annual funding for solar projects on existing multifamily affordable housing units.<sup>150</sup> SOMAH functions by providing multifamily housing solar system purchasers incentives *on top of* the already-existing federal investment tax credit, which currently covers 22% of costs, and provides those same incentives to solar system lessees whose system has third-party ownership.<sup>151</sup> Furthermore, programs like these in California are particularly widespread in EJ communities because California law requires 35% of its emissions cap-and-trade auction proceeds to be spent on clean energy projects in disadvantaged communities and low-

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143. Dolezal, *supra* note 125, at 2465.

144. *Id.*

145. *Id.*

146. *Id.*

147. *Id.* at 2466.

148. *California Celebrates Reaching One Million Solar Roofs Milestone; New Focus on "One Million Solar Batteries"*, CAL. SOLAR STORAGE ASSOC. (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>.

149. Dolezal, *supra* note 125, at 2468.

150. *Id.*

151. *Incentives & Finance*, CALSOMAH.ORG, <https://calsomah.org/incentives-finance> (last visited May 4, 2023).

income neighborhoods, reducing monthly utility bills for some of its beneficiaries by as much as 75%.<sup>152</sup>

Across the country, nonprofits and government entities alike are also beginning to choose to promote solar as a means to solve EJ energy burden issues.<sup>153</sup> In Washington, D.C., the city's government-driven "Solar for All" program provides access to free solar panels for low-income and EJ community households.<sup>154</sup> Frank Cole, a D.C. resident who received his home's solar panels at no cost, saw his energy bill decrease from upwards of \$400 a month prior to their installation to \$1.52 in August 2022 after their installation.<sup>155</sup> Although most "Solar for All" enrollees will not be single-family homeowners like Mr. Cole, as the program mostly gives renters access to community solar subscriptions such that they receive cheaper energy from shared solar facilities located throughout D.C., this is a fantastic model for states and local governments to emulate.<sup>156</sup> Also in D.C., a nonprofit organization named New Partners Community Solar Corporation implements large solar arrays on various commercial rooftops throughout the city, providing free electricity to many of the city's low-income households.<sup>157</sup> The proliferation of projects like these led D.C. to produce a shocking 46% of all its energy in 2021 through solar power.<sup>158</sup> Across the country, to aptly empower EJ communities financially and curb the air pollution they are disproportionately exposed to, implementing initiatives like these is essential.<sup>159</sup> Through initiatives such as these cutting into fossil-fueled energy providers' market share of electricity generation, those providers' eventual adoption of solar or other renewable technologies will become increasingly inevitable; upon the eventual widespread adoption of

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152. Patricia Leigh Brown, *Green Upgrade: How California Is Pioneering 'Energy Justice'*, YALE ENV'T 360 (Jul. 30, 2018), <https://e360.yale.edu/features/green-upgrade-how-california-is-pioneering-renewable-energy-justice-cap-and-trade>.

153. *EOC Receives Environmental Justice Solar Outreach Award*, ENERGY OUTREACH COLO. (Sept. 21, 2022), <https://www.energyoutreach.org/solar-outreach-award-presented-to-eoc/>; Kayla Benjamin, *Solar Energy – More Affordable Than Some May Believe*, THE WASH. INFORMER (Aug. 31, 2022), <https://www.washingtoninformer.com/solar-energy-more-affordable-than-some-may-believe/>.

154. Benjamin, *supra* note 154.

155. *Id.*

156. *Id.*

157. Mark O'Meara, *ITCs Help Low-Income Washington, D.C., Residents Receive Free Electricity*, 10 NOVOGRADAC J. OF TAX CREDITS 1 (Nov. 7, 2019), <https://www.novoco.com/periodicals/articles/its-help-low-income-washington-dc-residents-receive-free-electricity>.

158. *District of Columbia State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN. (Dec. 15, 2022), <https://www.eia.gov/state/?sid=DC#:~:text=In%202021%2C%20solar%20energy%20generated,16%25%20of%20the%20city's%20generation>.

159. *See generally Environmental Justice Screening Report for the Clean Power Plan*, *supra* note 10.

those technologies will come an end to electricity-based emissions and a massive reduction in nationwide air pollution.<sup>160</sup>

*B. Opportunities And Potential Pitfalls  
For Widespread Solar Implementation*

Some distributed solar generation systems are isolated and not connected to a local utility power grid, but most are connected to a larger power grid.<sup>161</sup> Therefore, an extremely important aspect of a righteous transition away from energy emissions pollutants to clean energy for EJ communities is allowing these communities to get “behind” the meter.<sup>162</sup> That is, for our nation’s air pollution crisis to be curbed whilst also giving EJ communities an opportunity to build generational wealth and break their cycles of energy poverty, those installing solar-distributed renewables on their residences need to be able to reap their full benefits by not having to pay a utility provider for its usage.<sup>163</sup> The best chance at doing this is by the implementation of consumer-friendly net-metering policies.<sup>164</sup> Customers with connected distributed generation systems can buy power from their electric utility when they are not producing enough electricity to meet their needs, but when their systems are producing more electricity than they are using, they can sell power back to utility companies through a process known as “net metering.”<sup>165</sup> Some experts are concerned that some net metering structures allow rooftop solar users to avoid paying their fair share of the costs of energy generation, which threatens to widen the energy gap.<sup>166</sup> However, if done correctly, a solid nationwide net metering policy would create an overall positive effect for consumers, especially those in EJ communities (assuming they continue to be given more accessible solar options),<sup>167</sup> as well as incentivize further development in the solar sector and therefore vastly decrease our nation’s fossil fuel emissions.<sup>168</sup> Thus, creating a model net metering standard for states that would help standardize

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160. See Frank Klose et al., *Toward a Distributed-Power World*, THE BOS. CONSULTING GRP. (June 2010), <http://www.newworldcapital.net/wp-content/uploads/2014/03/BCG-Toward-Distributed-Power-World.pdf>; see *supra* Part I.

161. Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*, 41 HARV. ENVTL. L. REV. 43, 45 (2017).

162. Solar Energy Technologies Off., *Solar Integration: Distributed Energy Resources and Microgrids*, U.S. DEP’T OF ENERGY, <https://www.energy.gov/eere/solar/solar-integration-distributed-energy-resources-and-microgrids> (last visited May 4, 2023).

163. See Pursley & Wiseman, *supra* note 126, at 897; Solar Energy Technologies Off., *supra* note 163.

164. Pursley & Wiseman, *supra* note 126, at 897.

165. Revesz & Unel, *supra* note 162.

166. Dolezal, *supra* note 125, at 2467; see generally Morello-Frosch et al., *supra* note 68.

167. Wiseman, *supra* note 128, at 92.

168. Mark Muro & Devashree Saha, *Rooftop Solar: Net Metering is a Net Benefit*, BROOKINGS INST. (May 23, 2016), <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/>.

how they treat distributed generation and maximize its deployment is of vital importance to stifling our air pollution crisis.<sup>169</sup>

Another vital piece of the widespread solar implementation puzzle is societal awareness of existing solar implementation policies and programs that serve to enable U.S. residents to become carbon-free energy consumers.<sup>170</sup> Better said, a *lack* of awareness of these policies and programs presents an enormous missed opportunity for EJ purposes.<sup>171</sup> One such policy that could drastically change our domestic emissions landscape is the “direct pay” option for federal tax credits.<sup>172</sup> Direct pay was created by the Inflation Reduction Act, and allows tax-exempt entities to receive a solar investment tax credit as a direct payment.<sup>173</sup> Before the Inflation Reduction Act, to make most nonprofit solar projects financially viable, tax-exempt organizations would partner with banks or developers that could take advantage of the tax benefits of implementing solar and sign power purchase agreements (PPAs) with them, which eventually allowed these organizations to pay off the solar equipment they installed on their facility.<sup>174</sup> Now, tax-exempt organizations like religious facilities, public schools, cities, and nonprofits can get those credits by direct pay, and receive a check for 30% of their solar project’s costs, just like how a tax-paying entity (such as a bank or developer) would receive the credit when filing taxes had they installed a solar energy system.<sup>175</sup> Essentially, the direct pay option paves the way for the economic viability of solar in many communities, as it provides tax-exempt organizations the opportunity to own solar projects at a massively reduced price instead of the larger, interest-accruing costs over extended periods of time they previously faced when buying solar equipment through PPAs.<sup>176</sup> For example, one large church in Arizona, by its implementation of solar energy for its facilities, will now keep *two million* pounds of carbon dioxide out of the atmosphere while saving approximately \$350,000 on electricity over

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169. See STAFF OF H. SELECT COMM. ON THE CLIMATE CRISIS, 116TH CONG., SOLVING THE CLIMATE CRISIS: THE CONGRESSIONAL ACTION PLAN FOR A CLEAN ENERGY ECONOMY AND A HEALTHY, RESILIENT, AND JUST AMERICA (Comm. Print 2020).

170. *Environmental Justice in Your Community*, U.S. ENV’T PROT. AGENCY (Apr. 19, 2023), <https://www.epa.gov/environmentaljustice/environmental-justice-your-community>.

171. *Id.*

172. *Federal Solar Tax Credits for Businesses*, U.S. DEP’T OF ENERGY (Apr. 2023), <https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses>.

173. Grace Coates et al., *How Your House of Worship Can Go Solar*, ENV’T TEX. (Jan. 17, 2023), <https://environmentamerica.org/texas/articles/how-your-house-of-worship-can-go-solar/>.

174. Kelsey Misbrener, *Who Qualifies for Direct Pay for the Solar ITC?*, SOLAR POWER WORLD (Sept. 12, 2022), <https://www.solarpowerworldonline.com/2022/09/who-qualifies-for-direct-pay-for-the-solar-itc/>.

175. *Id.*

176. *Id.*

the lifespan of its solar equipment, which is roughly forty years.<sup>177</sup> Fostering a healthier atmosphere in the most economically and socially efficient manner will depend on the general public's awareness of programs such as these.

Of course, with developments like widespread solar proliferation will come *societal* transitions. While a transition to renewable energy production is estimated to result in our society losing at least six million fossil fuel jobs, economists predict that between twenty-four and thirty-seven million clean energy jobs will be created.<sup>178</sup> This means that the *just* approach to a solar energy transition should focus on providing those workers displaced by the phasing out of fossil fuel jobs opportunities to train for and be employed by "green jobs."<sup>179</sup> This is especially important in an EJ context, as these communities are burdened by emissions from the very same power plants that provide them their incomes.<sup>180</sup> The Virginia Clean Economy Act, passed in 2020, considers this very issue, as it requires utilities that are building renewable resources to submit plans detailing their plans for prioritizing the apprenticeship and eventual hiring of local workers, veterans, and residents of historically economically disadvantaged communities.<sup>181</sup> Keeping this notion close as we move forward with our clean energy transition will be critical to ensuring environmental justice is truly served through this movement.

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177. Coates et al., *supra* note 174.

178. Elizabeth J. Kennedy, *Equitable, Sustainable, and Just: A Transition Framework*, 64 ARIZ. L. REV. 1045, 1049-1050 (2022).

179. *Id.* at 1081.

180. Diane Toomey, *Coal Pollution and the Fight For Environmental Justice*, YALE ENV'T 360 (Jun. 19, 2013), [https://e360.yale.edu/features/naacp\\_jacqueline\\_patterson\\_coal\\_pollution\\_and\\_fight\\_for\\_environmental\\_justice](https://e360.yale.edu/features/naacp_jacqueline_patterson_coal_pollution_and_fight_for_environmental_justice).

181. See Rita Clifton et al., *The Clean Economy Revolution Will Be Unionized: A Road Map from States on Creating Good, Union Jobs To Build the Clean Energy Economy*, CTR. FOR AM. PROGRESS (July 7, 2021), <https://www.americanprogress.org/wp-content/uploads/2021/06/Clean-Economy-Revolution.pdf>.

## CONCLUSION

The future of our energy landscape is green, and the writing is on the wall.<sup>182</sup> Before long, renewable energy sources will become the primary forces in our electricity generation industry, and the fossil fuel emissions that have plagued our nation's most vulnerable citizens will be slashed significantly. This transition is inevitable. But justice for these communities is not, if we do not transition properly.<sup>183</sup> We must take tangible steps even further than those this Note discusses to ensure that we do not miss out on the best opportunity our nation has ever had to amend some of our most profound domestic inequalities. Through *just* policies and programs that prioritize low-income and EJ communities' adoption of solar energy, we can break the cycle of energy poverty and, for most EJ communities, end the health crisis they face from air pollution.

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182. *U.S. Renewable Energy Consumption Surpasses Coal for the First Time in Over 130 Years*, *supra* note 14.

183. Kennedy, *supra* note 179.

