

POWER AND POLLUTION: APPROACHING COAL-FIRED POWER PLANTS AND RENEWABLE ENERGY THROUGH A RACIAL JUSTICE LENS

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Racial justice protests erupted across the United States in the summer of 2020, ignited by the public killing of George Floyd by a Minneapolis police officer. Although the struggle for racial justice in this country has spanned decades, one part of that struggle involves ongoing environmental injustices plaguing many U.S. minority neighborhoods. The disproportionate siting of coal-fired power plants in minority and low-income communities is one contributor to this problem. Environmental justice principles require efforts to decommission these coal plants and replace them with cleaner, more equitable energy infrastructure that benefits rather than burdens these communities. This article frames the nation's urban coal-fired power plants through the lenses of environmental justice, climate justice, energy justice, and energy democracy, and identifies several policies capable of driving that transition. Achieving environmental and energy justice for Black and low-income communities will require a resolute commitment from state governments, municipalities, and utilities, with each playing important policy roles. This article explains how renewable portfolio standard carve-out provisions, public benefit funds, Property Assessed Clean Energy programs, and community benefit could be tailored to help drive a just transition from coal-fired power plants to renewable energy projects.

INTRODUCTION

In summer 2020, the United States experienced what was possibly the largest movement for racial justice since the 1960s.¹ Months of protests were ignited by the public killing of George Floyd, a Black man, by a Minneapolis police officer.² In a video viewed by millions of people around the world, the officer knelt on George Floyd's neck and back while Floyd was handcuffed, repeatedly stating he could not breathe. After eight minutes and forty-six seconds, his body laid lifeless on the pavement.³ While Black Americans

¹ Elliott C. McLaughlin, *How George Floyd's Death Ignited a Racial Reckoning that Shows No Signs of Slowing Down*, CNN (Aug. 9, 2020), <https://www.cnn.com/2020/08/09/us/george-floyd-protests-different-why/index.html> [perma.cc/HG24-BT3W].

² *Id.*

³ *Id.*

have long been targeted by excessive police violence, the particularly outrageous way in which Floyd was murdered caused protests to erupt nationwide.⁴

Unfortunately, Black Americans continue to also face myriad forms of governmental violence from entities other than law enforcement. The 7,000 people who live in the part of Detroit, Michigan encompassed by zip code 48217—often called America’s most toxic zip code—have been subjected to decades of extremely poor air quality.⁵ Coal-fired power plants and other industrial polluters have caused this predominantly Black, low-income community to suffer from shortened lifespans, as well as a significantly degraded quality of life with high rates of asthma, cancer, and other illnesses.⁶ Both the plight of the residents of zip code 48217 and the killing of George Floyd are rooted in the deep-seated systemic racism pervading this country; both are a result of structural and systematic devaluing of Black lives.

This article spotlights connections between the racism exhibited by police brutality and the racism perpetuating environmental and energy injustices in U.S. cities, and offers specific strategies for addressing the latter problem. Specifically, this article highlights how coal-fired power plants impose disproportionate health hazards on many Black and low-income communities. This article also outlines policy changes capable of remedying these disproportionate impacts by incentivizing cleaner, more sustainable, and more equitable forms of energy development within those communities.

Part I briefly describes the history of the movements for racial justice and environmental justice, as well as the impacts of coal-fired power plants and available technological alternatives. Both an analytical framework and specific policies are needed to understand and address the racially disparate impacts caused by coal-fired power plants, and to help guide a transition to a more equitable energy system. Part II describes the analytical framework of a just transition for communities plagued by pollutive energy facilities, focusing on environmental, energy, and climate justice, as well as energy democracy. Part III applies this analytical framework to specific policies that

⁴ *Id.*

⁵ Ossiana Tepfenhart, *Life Inside America’s Most Toxic Zip Code: A Warning of What Happens When Democracy Fails*, VOCAL (2016), <https://vocal.media/theSwamp/life-inside-america-s-most-toxic-zip-code-a-warning-of-what-happens-when-democracy-fails> [<https://perma.cc/4ZLP-VA3U>]; Steve Neavling, *Struggling to breathe in 48217, Michigan’s most toxic ZIP code*, DETROIT METRO TIMES (Jan. 8, 2020), <https://www.metrotimes.com/detroit/struggling-to-breathe-in-48217-michigans-most-toxic-zip-code/Content?oid=23542211> [<https://perma.cc/P3J9-6Q83>].

⁶ Neavling, *supra* note 5.

support and facilitate a just transition from urban coal-fired power plants toward more racially just and environmentally sustainable energy strategies.

I. JUSTICE MOVEMENTS & TECHNOLOGY: OFFERING A NEW WAY FORWARD

The racial and environmental injustices near many coal-fired power plants across the United States are longstanding and deeply connected. Part I outlines these injustices and how they continue to impact Black communities today. Section A provides a brief overview of the sordid history of race relations in the United States and how it has shaped the present demographic composition of both metropolitan and rural areas. Section B briefly summarizes the history of the environmental justice movement, which arose out of the civil rights movement. Section C explores the racial disparity in the distribution of coal-fired power plants and the disproportionate health burdens minority communities suffer as a result. That section also explains why merely replacing coal-fired plants with natural gas generation is inadequate. Section D provides an overview of energy storage and distributed generation technologies—alternatives to coal-fired power that could replace these facilities and benefit the communities that host them.

A. *The Fight for Racial Justice*

The United States has an abysmal record on racial justice, and this ugly history still impacts where many Black Americans live and work today. After the American Civil War ended chattel slavery in the United States, former slave-owning states in the South enacted a multitude of racist and segregationist laws—known as Jim Crow laws—while simultaneously embarking on a campaign of violent intimidation, lynching thousands of Black Americans.⁷ These racist policies and accompanying violence caused a mass migration of Black Americans from the rural South to industrial northern cities such as Philadelphia, Chicago, and Detroit.⁸ However, many cities' racist housing policies forced most Black Americans to live in segregated neighborhoods filled with substandard housing.⁹ Legal mechanisms, such as restrictive covenants and federal government policies combined with industry practices such as “redlining,” were used to systemically deprive Black Americans of the promise of opportunity most white Americans had full access to.¹⁰ From the 1930s through the 1950s,

⁷ *The Great Migration*, HISTORY, <https://www.history.com/topics/black-history/great-migration> [<https://perma.cc/ZM2J-AMB7>].

⁸ *Id.*

⁹ MICH. C.R. COMM'N, *THE FLINT WATER CRISIS: SYSTEMIC RACISM THROUGH THE LENS OF FLINT* 39-42 (2017).

¹⁰ *See id.*; Linda Villarosa, *Pollution Is Killing Black Americans. This Community*

many suburbs were created explicitly and exclusively as white communities.¹¹ When these communities eventually changed and Black families were allowed to move into them, white people left in droves, moving elsewhere in a phenomenon known as “white flight.”¹² The current shape and composition of urban and suburban neighborhoods are a direct result of these racist policies and practices.

Driven by concerns about ubiquitous racism throughout the United States, a long-standing campaign of protests and civil disobedience, now known as the civil rights movement, arose in the 1950s and 1960s.¹³ This movement sought to challenge not only Jim Crow laws but also segregationist policies in southern and northern states alike.¹⁴ The civil rights movement expressly challenged the doctrine of “separate but equal” that had been enshrined into law by the United States Supreme Court decision in *Plessy v. Ferguson*.¹⁵ However, this legal doctrine found the beginning of its end in 1954, as a result of that Court’s decision in *Brown v. Board of Education*, which held that segregation in public schools violated the Equal Protection clause of the 14th Amendment.¹⁶ The following year, Rosa Parks challenged the “separate but equal” doctrine in a public transportation setting, refusing to give her seat on a public bus to a white man, resulting in her arrest and the 381-day Montgomery Bus Boycott.¹⁷ Her arrest and the subsequent protests, coupled with the decision in *Brown v. Board of Education*, catapulted the civil rights movement onto the national stage.¹⁸

B. The Movement for Environmental Justice

Arising out of the civil rights movement in the late 1970s, the environmental justice movement focuses on the disproportionate distribution

Fought Back, N.Y. TIMES (Jul. 28, 2020), <https://www.nytimes.com/2020/07/28/magazine/pollution-philadelphia-black-americans.html> [<https://perma.cc/ED8X-UD9C>].

¹¹ KIRWAN INST., STRUCTURAL RACIALIZATION: A SYSTEMS APPROACH TO UNDERSTANDING THE CAUSES AND CONSEQUENCES OF RACIAL INEQUITY (May 29, 2012) [<https://perma.cc/3MF6-8AVV>].

¹² *Id.*

¹³ *Civil Rights Movement*, HISTORY, <https://www.history.com/topics/black-history/civil-rights-movement> [<https://perma.cc/5D3K-VFE3>].

¹⁴ *Id.*

¹⁵ *Id.*; *Plessy v. Ferguson*, 163 U.S. 537 (1896).

¹⁶ *Civil Rights Movement*, *supra* note 13; *Brown v. Board of Education of Topeka*, 347 U.S. 483 (1954).

¹⁷ *Civil Rights Movement*, *supra* note 13.

¹⁸ *Id.*

of environmental harms and benefits.¹⁹ The term “environmental justice” embodies the idea that everyone should equally benefit from environmental protection and have an equal opportunity to participate in environmental decision-making.²⁰ The goal of environmental justice is to make environmental decision-making more democratic by asking “who gets what, why and how much.”²¹

The environmental justice movement began in 1978 when the Ward Transformer Company illegally dumped 30,000 gallons of toxic PCB-contaminated waste along highways in North Carolina.²² This criminal action necessitated the removal of 60,000 tons of contaminated soil.²³ To dispose of the contaminated soil, state and U.S. Environmental Protection Agency (“EPA”) officials decided to construct a toxic waste landfill in Warren County—a rural county where the majority of residents were Black.²⁴ In 1982, residential, environmental, and civil rights interests converged to launch a massive campaign of civil disobedience to prevent construction of the landfill.²⁵ To prevent dump trucks loaded with contaminated soils from entering the landfill site, protestors laid across the road, blocking traffic from entering the facility.²⁶ More than 500 people were arrested during this campaign, which was led not by environmental leaders, but by civil rights leaders such as Rev. Dr. Benjamin Chavis, who incorporated civil disobedience strategies that had been perfected during the civil rights movement of the 1960s.²⁷

¹⁹ Uma Outka, *Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition*, 19 J. ENV'T & SUSTAINABILITY L. 60, 92 (2012).

²⁰ James M. Van Nostrand, *Energy and Environmental Justice: How States Can Integrate Environmental Justice into Energy-Related Proceedings*, 61 CATH. U. L. REV. 701, 702 (2012). “Simply put, the concept of environmental justice provides that everybody has an equal right to live in a clean, healthy and safe environment, and when it comes to decisions that involve or affect their environment, everybody should have an equal voice.” MICH. C.R. COMM’N, *THE FLINT WATER CRISIS: SYSTEMIC RACISM THROUGH THE LENS OF FLINT* 89-90 (2017).

²¹ Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ENV’T L. REP. 10681, 10683 (2000).

²² Linda Villarosa, *Pollution Is Killing Black Americans. This Community Fought Back*, N.Y. TIMES (Jul. 28, 2020), <https://www.nytimes.com/2020/07/28/magazine/pollution-philadelphia-black-americans.html> [<https://perma.cc/ED8X-UD9C>].

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*; MICH. C.R. COMM’N, *supra* note 20, at 87; Ember D. McCoy, *Which Came First*,

The following year the U.S. General Accounting Office conducted a study that found that three of the four hazardous-waste landfills in EPA Region IV were sited in predominantly Black communities.²⁸ In 1987, the United Church of Christ Commission for Racial Justice—directed by Rev. Dr. Chavis—released a report titled *Toxic Wastes and Race in the United States* (“the UCC report”), which found a direct correlation between race and proximity to toxic waste sites.²⁹ Notably, race was a more significant predictor of proximity to those facilities than socioeconomic status.³⁰ The study additionally found that 60% of all Black and Hispanic Americans lived in communities blighted by toxic waste sites.³¹

In 1990, Dr. Robert Bullard—often called “the father of environmental justice”—published *Dumping in Dixie: Race, Class, and Environmental Quality*.³² Supporting his arguments with specific case studies, Dr. Bullard concluded that pollution from landfills and hazardous waste facilities, coupled with industrial emissions, were devastating Black communities.³³ A 1992 study of commercial waste disposal facilities in the Detroit area found that those facilities were concentrated in Black neighborhoods and that race was a more significant predictor of proximity to toxic waste sites than socioeconomic status.³⁴

The studies provided empirical evidence of the problem around which the blossoming environmental justice movement could coalesce. In 1991, hundreds of environmental justice activists, advocates, and leaders met in Washington, D.C. for the First National People of Color Environmental Leadership Summit. There they drafted a “constitution” establishing 17

Coal-Fired Power Plants or Communities of Color? (Aug. 2017) (unpublished M.S. Thesis, University of Michigan) [<https://perma.cc/R5EN-REEC>].

²⁸ McCoy, *supra* note 27, at 6.

²⁹ BENJAMIN F. CHAVIS JR. ET AL., UNITED CHURCH OF CHRIST, COMM’N FOR RACIAL JUST., TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL REPORT ON THE RACIAL AND SOCIO-ECONOMIC CHARACTERISTICS OF COMMUNITIES WITH HAZARDOUS WASTE SITES, at xv (1987) [<https://perma.cc/PN8N-DQFN>]. See Villarosa, *supra* note 22; McCoy, *supra* note 27, at 6.

³⁰ Villarosa, *supra* note 22; McCoy, *supra* note 27, at 6.

³¹ Villarosa, *supra* note 22.

³² ROBERT D. BULLARD, DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY (Westview Press 1990)

³³ *Id.*

³⁴ McCoy, *supra* note 27, at 7.

principles of environmental justice—principles that are still used to guide most environmental justice activism today.³⁵

In response to this movement, the EPA established the Office of Environmental Equity in 1992, renamed in 1994 as the Office of Environmental Justice.³⁶ President Clinton issued Executive Order 12,898 in the same year, requiring all federal agencies to “develop an environmental justice strategy to identify and address ‘disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.’”³⁷ President Clinton also established a National Environmental Justice Advisory Council to advise the EPA on environmental justice concerns and issues.³⁸

In 2007, Dr. Bullard issued a follow-up to the UCC Report titled *Toxic Wastes and Race at Twenty: 1987-2007*.³⁹ In this new report, Dr. Bullard found that the racial disparity between communities with toxic waste sites and those without was even more significant than previous studies had indicated.⁴⁰ Specifically, he found that, on average, the majority of residents within 1.8 miles of a polluting facility were people of color.⁴¹ Also, consistent with previous studies, he found race to be a more significant predictor of proximity to toxic waste than socioeconomic status.⁴² A different study published the following year “found that African-American families with incomes of \$50,000 to \$60,000 were more likely to live in environmentally polluted neighborhoods than white households with incomes below \$10,000.”⁴³

³⁵ Villarosa, *supra* note 22; Maya Lewis, *Civil Rights Are Green: A Concise History of Environmental Racism and Justice in the US*, EVERYDAY FEMINISM (Oct. 6, 2017), <https://everydayfeminism.com/2017/10/history-environmental-racism/> [<https://perma.cc/S5JZ-4Q8F>]; ADRIAN WILSON ET AL., COAL BLOODED: PUTTING PROFITS BEFORE PEOPLE 4-5 (2012), <https://naacp.org/resources/coal-blooded-putting-profits-people> [<https://perma.cc/2HR9-5WLZ>].

³⁶ Lewis, *supra* note 35.

³⁷ Uma Outka, *Fairness in the Low-Carbon Shift: Learning from Environmental Justice*, 82 BROOK. L. REV. 789, 795 (2017).

³⁸ *Id.* at 979.

³⁹ ROBERT D. BULLARD ET AL., UNITED CHURCH OF CHRIST, JUST. & WITNESS MINISTRIES, TOXIC WASTES AND RACE AT TWENTY: 1987-2007 (2007) [<https://perma.cc/WK7S-JJXL>]

⁴⁰ Villarosa, *supra* note 22.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

In the wake of the environmental justice movement, new social forces have emerged seeking rectification of the inequalities inherent in traditional energy systems as well as recognition of the dire situation of an increasingly warming climate. The energy justice movement emphasizes that all humans should have an energy source that is reliable, safe, affordable, and protects against disproportionate harms from energy system activities.⁴⁴ Energy justice further seeks procedural fairness and representation of affected communities in energy related decision-making.⁴⁵ Energy justice advocates envision a community-led transition to renewable energy systems that include community-owned renewable projects.⁴⁶ The climate justice movement similarly promotes greater recognition of the unequal burdens of global warming placed on the most vulnerable populations globally, nationally, and locally.⁴⁷ In recent years, these movements have coalesced into strong social-political forces calling for a bold and rapid transformation of the nation's energy system.

Environmental justice concerns burst into the national conversation again in 2015 with public revelation of the Flint water crisis in Michigan, which, at that point, had been ongoing for more than a year.⁴⁸ Environmental justice, energy justice, and climate justice continued garnering attention over the following year as the Flint water crisis continued, and the public battle over the Dakota Access Pipeline—a controversial oil pipeline which encroached on tribal sovereignty in the Great Plains—began.⁴⁹ While the fight for environmental justice and the fight against police brutality highlighted above

⁴⁴ Aladdine Joroff, *Energy Justice: What it Means and How to Integrate it into State Regulation of Electricity Markets*, 47 ENV'T. L. REP. NEWS & ANALYSIS 10927, 10927 (2017).

⁴⁵ Benjamin K. Sovacool & Michael H. Dworkin, *Energy Justice: Conceptual Insights and Practical Applications*, 142 APPLIED ENERGY 435, 440 (2015).

⁴⁶ See generally NAACP ENV'T & CLIMATE JUST. PROGRAM, JUST ENERGY POLICIES: MODEL ENERGY POLICIES GUIDE (2017) [<https://perma.cc/RC27-FK7Y>]; NAACP, CLIMATE JUSTICE INITIATIVE TOOLKIT (2010) [<https://perma.cc/76B2-HJRN>].

⁴⁷ Outka, *supra* note 37, at 789-90 (energy and climate justice concerns focus on “inequality in the distribution of environmental harms, as well as access to the environmental, economic, and social benefits associated with the energy sector and climate policy.”); CLIMATE JUSTICE INITIATIVE TOOLKIT, *supra* note 46, at 3-4.

⁴⁸ Melissa Denchak, *Flint Water Crisis: Everything You Need to Know*, NAT'L RES. DEF. COUNCIL (Nov. 8, 2018), <https://www.nrdc.org/stories/flint-water-crisis-everything-you-need-know> [<https://perma.cc/VP9L-SJQL>]

⁴⁹ While Indigenous communities face environmental injustices as frequently as Black communities do, this paper is focused on pollution from coal-fired power plants in urban settings, and thus focuses largely on Black communities.

may seem like different battles, both are rooted in the systemic and systematic devaluing of Black and Brown lives that has long plagued this country.

C. The Disproportionate Impacts of Coal-fired Power Plants and the Inadequacy of Natural Gas Conversion

One form of environmental injustice that continues to afflict many Black communities in the U.S. is the disproportionate siting of coal-fired power plants in or near those communities. In recent years, there has been a growing push across the country to decommission coal-fired power plants. Greenhouse gas emissions from fossil-fuel power plants are a leading contributor to climate change, and coal-fired power is especially detrimental to a stable climate.⁵⁰ Burning coal also releases a variety of pollutants—including sulfur dioxide, nitrogen oxides, mercury, ozone, and particulate matter—that cause a multitude of health problems, including major respiratory problems.⁵¹

Because many U.S. coal-fired power plants are in sited urban areas, and because Black Americans are frequently concentrated in urban areas due in large part to the racist policies discussed above, they are disproportionately impacted by emissions from these plants.⁵² A 2002 study found that 71% of Black Americans live in counties that violate federal air pollution standards, whereas only 58% of white Americans live in such counties. Additionally, 68% of Black Americans live within 30 miles of a coal plant, compared to 56% of white Americans.⁵³ Among those who live within a 3-mile radius of a coal-fired power plant, per capita income is lower than the national average. And, in this group, the proportion of residents who are people of color is higher than the national average.⁵⁴ Furthermore, not all coal plants equally impact surrounding communities: “a small number of coal power plants have a disproportionately large and destructive effect on the public’s health, especially on the health of low-income people and people of color.”⁵⁵ A 2012 NAACP study analyzed coal-fired power plants through an environmental justice lens and found that of the 75 worst-performing plants, 53% of nearby

⁵⁰ CLIMATE JUSTICE INITIATIVE TOOLKIT, *supra* note 46, at 8.

⁵¹ BLACK LEADERSHIP F., AIR OF INJUSTICE: AFRICAN AMERICANS AND POWER PLANT POLLUTION 7-8 (2002) [<https://perma.cc/QC7P-7C3J>].

⁵² *Id.* at 2.

⁵³ *Id.* at 3.

⁵⁴ ADRIAN WILSON ET AL., COAL BLOODED: PUTTING PROFITS BEFORE PEOPLE 4-5 (2012) [<https://perma.cc/2HR9-5WLZ>].

⁵⁵ *Id.* at 9.

residents were people of color, and of the 12 worst, 76% of nearby residents were people of color.⁵⁶

Black Americans' disproportionate exposure to coal-fired power plant emissions has resulted in similarly disproportionate health impacts on these communities. Studies suggest that particulate matter from coal plants causes 1,530 excess deaths in the U.S. annually, and that coal plant pollution is responsible for 13,200 premature deaths and 9,700 hospitalizations annually.⁵⁷ As a result of exposure to air pollution, Black Americans suffer from asthma at three times the rate that White Americans do.⁵⁸ Black mothers are twice as likely to live in the most polluted counties compared to white mothers, and the Black infant mortality rate is twice the white infant mortality rate.⁵⁹ Cities with poor air quality have a rate of infant mortality 10% higher than other cities, and cities with high levels of particulate matter see a 26% increased risk of Sudden Infant Death Syndrome and a 40% increased risk of respiratory mortality.⁶⁰ Air pollution also increases mortality from heat stress—a problem that is especially pervasive in urban areas due to the urban heat island effect.⁶¹ Increased air pollution is likewise associated with increased mortality from heart disease and cancer.⁶²

Air pollution falls along the color line: “In every single one of the 44 major metropolitan areas in the U.S., Blacks are more likely than Whites to be exposed to higher air toxics concentrations.”⁶³ In 1992, the EPA concluded that people of color “experience higher than average exposures to selected air pollutants [and] hazardous waste facilities.”⁶⁴ Black Americans suffer a burden of exposure to particulate matter 2.5 micrometers in diameter or less (PM2.5) that is 1.54 times the exposure burden facing white Americans.⁶⁵

⁵⁶ *Id.* at 27, 30.

⁵⁷ *Id.* at 17.

⁵⁸ BLACK LEADERSHIP F., *supra* note 51, at 9-10.

⁵⁹ CONG. BLACK CAUCUS FOUND., INC., AFRICAN AMERICANS AND CLIMATE CHANGE: AN UNEQUAL BURDEN 10-11 (2004) [<https://perma.cc/4HKX-5QJ5>].

⁶⁰ BLACK LEADERSHIP F., *supra* note 51, at 11.

⁶¹ CONG. BLACK CAUCUS FOUND., *supra* note 59, at 20, 31. The urban heat island effect describes the way in which concrete and buildings absorb and radiate heat, which is compounded by a lack of tree canopy; urban areas are frequently significantly hotter than surrounding suburban or rural areas.

⁶² *Id.* at 40.

⁶³ CONG. BLACK CAUCUS FOUND., *supra* note 59, at 2.

⁶⁴ Uma Outka, *Fairness in the Low-Carbon Shift: Learning from Environmental Justice*, 82 BROOK. L. REV. 789, 795 (2017).

⁶⁵ Ihab Mikati et al., *Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status*, 108 AM. J. PUB. HEALTH 480, 480 (2018).

Race is a more significant predictor of exposure than socioeconomic status.⁶⁶ A higher exposure to particulate matter leads to higher rates of asthma and increased mortality.⁶⁷ Estimates of PM2.5-related deaths from electricity generation range from 10,400 to 52,000 premature deaths every year.⁶⁸ The rate of premature deaths is higher in areas with coal-heavy electric grids, with mortality rates being the highest for Black Americans; racial disparities persist “even after accounting for differences in income.”⁶⁹

Although Black Americans bear more of the health and other burdens of coal-fired power plants, they do not equally share in the benefits of these facilities. One study found that “African American households emit twenty percent less carbon dioxide than white households,” while at the same time spending a significantly higher portion of their income on direct energy purchases.⁷⁰ Even though white Americans consume more energy and create more pollution, people of color are exposed to higher levels of pollution.⁷¹ Generally, white Americans “experience [approximately] 17% less air pollution exposure than is caused by their consumption,” while Black and Hispanic Americans “on average bear a ‘pollution burden’ of 56% and 63% excess exposure, respectively, relative to the exposure caused by their consumption.”⁷² Shutting down coal-fired power plants would not only reduce carbon dioxide emissions, but also reduce the emissions of other pollutants, mitigating many health hazards for Black communities.⁷³

While there has been a movement away from reliance on coal-fired power plants in the last decade, efforts to replace these plants with power generation facilities that run on natural gas could replicate many of the same inequalities. From 2011 to 2019, 121 U.S. coal-fired plants were repurposed to burn other types of fuels, 103 of which were converted to or replaced by natural gas fired

⁶⁶ *Id.* at 481-82.

⁶⁷ *Id.* at 484.

⁶⁸ Mahinder P.S. Thind et al., *Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography*, 53 ENV'T SCI. & TECH. 14010, 14010 (2019). These numbers are not limited to pollution from coal plants but are inclusive of pollution from all sources of electricity generation.

⁶⁹ *Id.* at 14012-13.

⁷⁰ CONG. BLACK CAUCUS FOUND., *supra* note 59, at 3.

⁷¹ Christopher W. Tessum et al., *Inequity in Consumption of Goods and Services Adds to Racial-Ethnic Disparities in Air Pollution Exposure*, 116 PROC. NAT'L ACAD. SCI. 6001, 6003 (2019).

⁷² David Roberts, *Trump's EPA Blast at a Chance to Save Black Lives*, VOX (Jun. 16, 2020), <https://www.vox.com/energy-and-environment/2020/6/16/21290591/trump-black-lives-epa-air-pollution-covid-19> [<https://perma.cc/BAF4-3NP2>].

⁷³ CONG. BLACK CAUCUS FOUND., *supra* note 59, at 5.

plants.⁷⁴ Discovery of domestic shale deposits and developments in hydraulic fracturing significantly contributed to a rapid growth in natural gas production in the U.S. over this time frame.⁷⁵ The economic incentive of dramatically decreased costs primarily drove this shift away from coal-fired plants, but many utilities also saw it as a way to meet emissions targets, framing their decisions in terms of reduced harms to the environment.⁷⁶ Significantly, many of the worst offending coal-fired plants from an environmental justice standpoint, identified by the 2012 NAACP study, have been shut down or converted to natural gas since its publication.⁷⁷

Unfortunately, emissions from the nation's growing number of natural gas-fired plants also pose health threats to Black and low-income communities. Natural gas-fired plants also emit a significant amount of nitrogen oxides ("NOx"), especially when starting up.⁷⁸ Prolonged exposure to high concentration of nitrogen oxides can cause increased rates of respiratory problems, such as asthma, and can form dangerous chemicals in the air—including particulate matter and ozone—with serious health effects.⁷⁹ The extraction of natural gas likewise presents many environmental

⁷⁴ Lindsay Aramayo, *More Than 100 Coal-Fired Plants Have Been Replaced or Converted to Natural Gas Since 2011*, U.S. ENERGY INFO. ADMIN. (Aug. 5, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=44636> [<https://perma.cc/635K-KXG5>].

⁷⁵ *Shale Gas 101*, U.S. OFFICE OF FOSSIL ENERGY, <https://www.energy.gov/fe/shale-gas-101> [<https://perma.cc/Q3SH-8E35>]; Emily Geary, *U.S. Natural Gas Production Grew Again in 2019, Increasing by 10%*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/todayinenergy/detail.php?id=43115> [<https://perma.cc/77VF-T5AD>].

⁷⁶ *Cleaner Energy, Natural Gas Has Made the U.S. an Environmental Leader*, AM. GAS ASS'N, <https://www.aga.org/natural-gas/clean-energy/> [<https://perma.cc/EE64-Y487>].

⁷⁷ The three worst offending plants on the study's environmental justice rating have been fully shut down, and the fourth was converted to natural gas in 2015. Julie Wernau, *Closure of Chicago's Crawford, Fisk Electric Plants Ends Coal Era*, CHI. TRIBUNE (Aug. 30, 2012), <https://www.chicagotribune.com/business/ct-xpm-2012-08-30-chi-closure-of-chicagos-crawford-fisk-electric-plants-ends-coal-era-20120830-story.html> [<https://perma.cc/c/AFN3-ZQQM>]; James M. O'Neil, *2 N.J. Coal Power Plants Close for Good, Ensuring Cleaner Air*, N. JERSEY (May 31, 2017), <https://www.northjersey.com/story/news/environment/2017/05/31/coal-power-plants/355425001/> [<https://perma.cc/7S7P-3RHR>]; Chuck Quirnbach, *Milwaukee Coal Plant Completes Conversion to Natural Gas*, WISC. PUB. RADIO (Nov. 24, 2015), <https://www.wpr.org/milwaukee-coal-plant-completes-conversion-natural-gas> [<https://perma.cc/VQT9-PBNR>].

⁷⁸ ASPEN ENV'T GRP. ET AL., SENATE BILL 350 STUDY: THE IMPACTS OF A REGIONAL ISO-OPERATED POWER MARKET ON CALIFORNIA 99 (2016) ("combined cycle natural gas-fired units emit about as much NOx during a startup as approximately 7 hours of full-load operation, and simple cycle units about as much NOx during a startup as approximately 3 hours of full operation").

⁷⁹ Mark Specht, *No, Natural Gas Power Plants Are Not Clean*, UNION OF CONCERNED SCIENTISTS (Nov. 9, 2018), <https://blog.ucsusa.org/mark-specht/natural-gas-power-plants->

and environmental justice problems, including a significant risk of groundwater contamination near fracking sites and substantial climate impacts from methane leaks.⁸⁰ Minimal research exists analyzing the environmental justice impacts of the transition from coal-fired to natural gas plants beyond issues related to extraction, but concentrating emissions at existing centralized locations will almost certainly contribute to continued inequalities in health effects for populations located near converted plants in urban settings.⁸¹ This shift in energy strategies recognized the environmental degradation and inequalities created by coal-fired power at local, national, and climate scales. However, it represents a measure based on economic realities rather than social justice and environmentalism.

Because of the disproportionate impacts of coal-fired power plants on Black communities, decommissioning these plants is not only important to mitigate the effects of climate change—it is also imperative as a matter of racial justice. As stated succinctly in the 2012 NAACP study, “the only truly effective way to stop coal fired power plants from polluting the communities in which they are located, is to close them.”⁸²

D. Distributed Generation and Energy Storage

The growing push to replace coal-fired power with cleaner, renewable power presents an important opportunity to also reduce energy injustices from coal-fired power across the United States. When coal-fired power plants are decommissioned, they generally must be replaced with different energy systems. From an environmental policy perspective, the best substitute for fossil fuel electricity generation is renewable energy systems, which emit no carbon dioxide or other pollutants in producing electricity.⁸³ While centralized fossil fuel electricity generation can be replaced with centralized renewable energy generation, existing systems can also be replaced with distributed generation—facilities that produce electricity at or near the point where it is used.⁸⁴ Most “distributed energy resources” (“DERs”) are

are-not-clean [<https://perma.cc/ABM3-YDCM>].

⁸⁰Anthony J. Marchese & Dan Zimmerle, *The US Natural Gas Industry is Leaking Way More Methane than Previously Thought*, THE CONVERSATION (Jul. 2, 2018), <https://theconversation.com/the-us-natural-gas-industry-is-leaking-way-more-methane-than-previously-thought-heres-why-that-matters-98918> [<https://perma.cc/T3NS-A696>].

⁸¹Sprecht, *supra* note 79.

⁸²ADRIAN WILSON ET AL., COAL BLOODED: PUTTING PROFITS BEFORE PEOPLE 47 (2012) [<https://perma.cc/2HR9-5WLZ>].

⁸³See NAACP ENV’T AND CLIMATE JUST. PROGRAM, JUST ENERGY POLICIES: MODEL ENERGY POLICIES GUIDE 3 (2017) [<https://perma.cc/RC27-FK7Y>].

⁸⁴*Distributed Solar*, SOLAR ENERGY INDUS. ASS’N., <https://www.seia.org/initiatives/>

relatively small in scale.⁸⁵ As of 2017, over 90% of the current distributed generation in the U.S. came from photovoltaic cell solar panels. DERs also include small-scale wind turbines, fuel cells, and other forms of renewable generation.⁸⁶ Wind and solar are the fastest growing renewable energy markets, accounting for nearly two of every five construction jobs in the electric generation sector in 2019.⁸⁷ Currently, most distributed generation is tied to the major utility grids that provide power to nearly all people in the U.S., with power providers in many states allowing customers to capture economic benefits of distributed generation by selling excess power generated by their systems back to the grid.⁸⁸

Many forms of distributed generation are owned by individuals and corporations to meet specific energy needs, but community ownership of renewably powered distributed generation is increasingly seen as a major goal of those advocating for a rapid shift to a green economy.⁸⁹ The most common examples of community-owned renewable energy—solar gardens and small-scale wind energy installations—allow a group of people to collectively purchase all or part of a project located on or near their residence.⁹⁰ Advocates argue that this increased democratic control over energy systems ensures that the benefits of these innovations are equitably allocated.⁹¹

Presently, renewable energy technologies alone cannot satisfy all the nation's energy demands because wind and solar energy resources are intermittent, only producing electricity when the sun is shining or when the wind is blowing. Energy storage technologies will thus be crucial to overcome this intermittency problem.⁹² Many forms of energy storage, such as reservoirs with hydroelectric dams and chemical batteries, have been

rooftop-solar [<https://perma.cc/9QBK-8WY7>].

⁸⁵ See AM. PUB. POWER ASS'N., *DISTRIBUTED GENERATION: AN OVERVIEW OF RECENT POLICY AND MARKET DEVELOPMENTS* 3 (2013) (explaining that most DERs range from 3 kilowatts to 10 megawatts depending on the size and efficiency of the installation).

⁸⁶ *Id.*

⁸⁷ *Clean Jobs America 2019*, ENV'T ENTREPRENEURS (Mar. 13, 2019), <https://e2.org/reports/clean-jobs-america-2019/> [<https://perma.cc/TDR7-2PNX>]

⁸⁸ Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*, 41 HARV. ENV'T L. REV. 43, 45 (2017).

⁸⁹ MODEL ENERGY POLICIES GUIDE, *supra* note 83, at 3.

⁹⁰ *Id.* at 32

⁹¹ *Id.*

⁹² Revesz & Unel, *supra* note 88, at 140 (“Energy storage in this context refers to technologies capable of receiving electric energy from the grid and storing it for the purpose of releasing it back to the grid at a later time”).

utilized in power generation for centuries. But new technologies and applications of energy storage within the electricity system have emerged due to significant innovation and decreased costs from economies of scale.⁹³ Traditionally, energy storage alleviates problems caused by having fixed capacity for power generation with a fluctuating demand for electricity over time by providing a new dispatchable source of backup power in periods of high load demand.⁹⁴ Energy storage capacity has long been considered a key enabling factor in the integration of renewable resources into energy systems because storage technologies allow surplus energy to be saved for periods when demand is greater than generation and to address the intermittency problem.⁹⁵

International and domestic energy providers are increasingly looking toward energy storage paired with distributed renewable generation as a clean-energy solution.⁹⁶ Many scholars and analysts argue that energy storage and distributed generation can entirely replace coal generation in the U.S. with existing technologies, without increasing consumer electric rates.⁹⁷ Rapid advancement may make the same true for all fossil fuels.⁹⁸ Notably, stakeholders in European power systems have recently begun looking to replace fossil-fuel burning power plants with energy storage facilities tied to centralized and distributed renewable generation.⁹⁹

These technological developments—energy storage and distributed generation—could also play important roles in mitigating the serious

⁹³ Developments have been made in mechanical systems, such as compressed air, flywheel, and pumped hydroelectric storage systems, electrochemical systems such as flow batteries, as well as other forms of thermal energy storage systems. APPARAO DEKKA ET. AL., A SURVEY ON ENERGY STORAGE TECHNOLOGIES IN POWER SYSTEMS 105 (2015).

⁹⁴ U.S. DEP'T OF ENERGY, GRID ENERGY STORAGE 5 (2013).

⁹⁵ Revesz & Unel, *supra* note 88, at 147.

⁹⁶ Michael L. Buchsbaum, *Germany Plans to Convert Coal Plants into Renewable Energy Storage Sites*, ENERGY TRANSITION (May 15, 2019), <https://energytransition.org/2019/05/coal-plants-into-renewable-energy-storage-sites> [<https://perma.cc/QPS3-E8XY>] (noting that 50+ MW batteries help balance Australia's grid, and development plans for 300 MW of storage in California by 2023 and plans for 850 MW of storage by Arizona Public Services by 2025).

⁹⁷ George Hilton, *Decommissioning Coal – an Opportunity for Energy Storage?*, PV MAG. (Apr. 14, 2020), <https://www.pv-magazine.com/2020/04/14/decommissioning-coal-an-opportunity-for-energy-storage/> [<https://perma.cc/U7CQ-UNT8>].

⁹⁸ *Id.*

⁹⁹ See Buchsbaum, *supra*, note 96; See also Chris Baraniuk, *The Giant Coal Plant Converting to Green Energy*, BBC (Aug. 2018), <https://www.bbc.com/future/article/20180821-the-giant-coal-plant-converting-to-green-energy> [<https://perma.cc/5A2H-XLBX>].

problems this article seeks to address. Centralized coal-fired power plants located in minority communities must be decommissioned or transitioned to non-fossil fuel uses to address the drastic racial disparities in public health. While existing and emerging technologies can address this crisis, existing policies still lag far behind in leveraging those technologies accordingly. Various government programs and policies mandate or incentivize transitions away from coal-fired power, but these laws do not do enough to promote cleaner replacement facilities or to otherwise help historically disadvantaged host communities. Fortunately, existing frameworks advanced by the environmental justice, energy justice, and climate justice movements provide analytical tools that can be helpful in developing policies to better address these shortcomings.

II. ENVIRONMENTAL MOVEMENT FRAMEWORK

The environmental justice framework and related scholarship have undergone significant development in the decades since the idea's inception. Environmental justice principles have been incorporated into some environmental laws and policies relevant to analyzing the racial inequalities associated with coal-fired power plants.¹⁰⁰ These developments should serve as guidance in shaping new energy systems. Contemporary attempts to address racial inequality in the distribution of environmental burdens and benefits have been shaped by new understandings of past and current harms, novel issues relating to a changing climate, and innovation in renewable energy technology and related environmental policy. This article attempts to address problems created by active and former coal-fired power plants and lay the groundwork for laws and policies that prevent replication or exacerbation of environmental inequalities and ensure a "just transition" to renewable-based energy generation.

Competing definitions of a just transition exist throughout environmental, labor, and climate-related scholarship; the most common usage of the term centers on the need to address employment and economic impacts resulting from the rapid drawdown of the fossil fuel industry.¹⁰¹ However, this article focuses more on addressing the environmental and health impacts of urban coal-fired power plants on host communities than on the labor-related impacts of decommissioning those plants. While labor concerns may be the

¹⁰⁰ Cf. Robert D. Bullard, *Wasted People: Environmental Racism, a 20-Year Saga*, BLACK AGENDA REP. (Apr. 4, 2007), <https://blackagenda.com/content/wasted-people-environmental-racism-20-year-saga> [<https://perma.cc/794L-579W>].

¹⁰¹ Anne M. Eisenberg, *Just Transitions*, 92 S. CAL. L. REV. 273, 285-87 (2019); Samantha Smith, *Just Transition: A Report for the OECD*, JUST TRANSITION CTR. (2017).

predominant use of the just transition framework, this article is not the first to apply the framework to environmental justice, energy justice, and climate justice concerns.¹⁰² In the context of this article, facilitating a just transition involves transitioning away from coal-fired power in ways that provide corrective justice for communities that have long borne disproportionate burdens of environmentally harmful activities and have been left out of related decision making.¹⁰³

Considering the abundance of data and evidence tying urban coal-fired power plants to racial inequalities in the distribution of environmental harms and associated health effects as presented above, decommissioning those generation sites is imperative under an environmental justice framework. However, strategies for replacing fossil-fuel based generation must likewise incorporate environmental justice principles to reshape the energy economy into one that is sustainable, equitable, and just for all.¹⁰⁴ One contemporary environmental justice scholar, Robert R. Kuehn, describes the framework as having four distinct dimensions in application: distributive, procedural, corrective, and social, with each having implications for efforts to replace urban coal-fired power plants with more just energy systems.¹⁰⁵ This article presents a discussion of three social movements that have arisen from this framework addressing these concerns: energy justice, climate justice, and energy democracy.¹⁰⁶ The principles of each of these movements are relevant

¹⁰² See Beth Gardiner, *Unequal Impact: The Deep Links Between Racism and Climate Change*, YALE ENV'T 360 (Jun. 9, 2020), <https://e360.yale.edu/features/unequal-impact-the-deep-links-between-inequality-and-climate-change> [<https://perma.cc/99KJ-P8QK>]; Eisenberg, *supra* note 101, at 280; NAACP ENV'T AND CLIMATE JUST. PROGRAM, JUST ENERGY POLICIES: MODEL ENERGY POLICIES GUIDE 13, 41 (2017) [<https://perma.cc/RC27-FK7Y>].

¹⁰³ A just transition is about making sure no group of people shoulders a disproportionate burden when it comes to transitioning to a renewable resource economy. Effective climate policy will not only phase out fossil fuels in favor of renewables, but it will also make the transition as fair as possible. To ensure equity and self-sufficiency, policies must engage and empower communities with the information and resources to transition a resource economy.

Deborah Behles, *From Dirty to Green: Increasing Energy Efficiency and Renewable Energy in Environmental Justice Communities*, 58 VILL. L. REV. 25 (2013).

¹⁰⁴ MODEL ENERGY POLICIES GUIDE, *supra* note 102, at 4.

¹⁰⁵ Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ENV'T L. REP. 10681, 10683 (2000).

¹⁰⁶ ADRIAN WILSON ET AL., COAL BLOODED: PUTTING PROFITS BEFORE PEOPLE 7 (2012) [<https://perma.cc/2HR9-5WLZ>]; Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, ENERGY POL'Y (Jun. 2017) [<https://perma.cc/J588-QTRG>]; Jennie C. Stephens, *Energy Democracy: Redistributing*

when evaluating the problems associated with coal-fired power plants and identifying strategies for building a more equitable system—a just transition plan that informs “both where we are going and how we will get there.”¹⁰⁷ The following sections describe these various frameworks. Section A describes the environmental justice framework. The principles of energy justice are described in Section B, and climate justice in Section C. Section D explores the concept and framework provided by the energy democracy movement.

A. *Dimensions of the Environmental Justice Framework*

The environmental justice framework calls for equal protection for all citizens from environmental degradation and related health effects, for efforts to redress institutional failures, and to address and evenly distribute environmental burdens and harms.¹⁰⁸ According to Dr. Bullard, distributive justice issues are often the fundamental concern of environmental justice advocates, involving “the equitable distribution of burdens resulting from environmentally threatening activities or of the environmental benefits of government and private-sector programs.”¹⁰⁹ For decades, academic and citizen-science research has generated ample empirical evidence correlating race and demographics with unequal environmental and health burdens as a result of proximity to environmentally degrading activities and locally unwanted land uses.¹¹⁰ Distributive injustice has been rampant in the context of urban coal-fired power plants.¹¹¹ As the nation transitions to renewables, future distributive justice considerations abound in determining which cities, towns, and communities are prioritized in gaining access to clean energy infrastructure and in the siting of new technologies that benefit, rather than harm, host communities.

Another central area of concern under the environmental justice framework is procedural justice, which focuses on how decisions are made in the pursuit of policy goals and who participates in or influences decision-

Power to the People Through Renewable Transformation, ENV'T: SCI. & POL'Y FOR SUST. DEV. (Feb. 13, 2019) [<https://perma.cc/TD6N-9GSR>].

¹⁰⁷ *Just Transition: A Framework for Change*, CLIMATE JUST. ALL. (2016), <https://climatejusticealliance.org/just-transition/> [<https://perma.cc/AG23-9P2N>].

¹⁰⁸ See Robert D. Bullard, *Environmental Justice for All: It's the Right Thing to Do*, 9 OR. J. ENV'T L. & LITIG. 281, 286 (1994).

¹⁰⁹ Kuehn, *supra* note 105, at 10684.

¹¹⁰ *Supra* Section I.C.

¹¹¹ *Id.*

making processes.¹¹² Procedural justice analysis examines the public accessibility of information relating to those decisions, the conscious and unconscious biases held by decision makers, and the general accessibility to legal processes for achieving redress when decisions are made against the wishes of a community.¹¹³ In the environmental justice realm, distributive injustice is often the outcome of actual or perceived procedural injustice; unjust outcomes often result from inequality in decision-making influence or control.¹¹⁴ Procedural injustice occurs in the context of urban coal-fired power plants where affected populations have little or no control over the processes for siting decisions and in influencing the amount, nature, and expediency of studies of associated health effects by political and non-governmental actors.¹¹⁵

In the environmental justice context, corrective justice calls for accountability for polluters, as well as compensation and reparation for the communities damaged. Some forms of corrective injustice overlap with procedural injustice—for example, where the penalties imposed for environmental violations in white areas differ from those in minority neighborhoods. Other forms of corrective injustice relate to the unequal government response to and distribution of resources in these minority communities to address environmental harms.¹¹⁶ In this context, Dr. Bullard describes minority populations as “invisible communities” in the eyes of the government, explaining how agencies often fail to utilize the broad corrective justice authority afforded to them when undertaking environmental enforcement in minority communities.¹¹⁷

The social justice elements of the environmental justice framework look beyond specific instances of distributive or procedural injustice and assess

¹¹² Kuehn, *supra* note 105, at 10688.

¹¹³ *Id.*

¹¹⁴ See HANNE SVARSTAD ET AL., POLICY MIX, THREE TYPES OF ENVIRONMENTAL JUSTICE (K. Margrethe Kvam Tingstad ed., 2011).

¹¹⁵ Richard J. Tobin & Richard A. Carpenter, *Public Participation in the Environmental Review Process, with Special Reference to Coal-fired Power-plant Siting*, ENV'T CONSERVATION 318 (1983) (noting that historically public involvement occurred too late in the siting process to be effective or useful).

¹¹⁶ See Logan Judy, *Liberty and Environmental Justice for All? An Empirical Approach to Environmental Racism*, 53 WAKE FOREST L. REV. 739, 756-757 (2018) (finding that levels of EPA enforcement are lower when there is a higher population of minorities in a congressional district, while median household income level per district had neither positive nor negative effect on enforcement severity).

¹¹⁷ Robert D. Bullard, *Environmental Racism and “Invisible” Communities*, 96 W. VA. L. REV. 1037, 1037 (1993-1994).

macro-level environmental equality between groups.¹¹⁸ Environmental justice as social justice provides an inclusive lens, allowing assessment of non-governmental actions and their overall environmental justice implications, and should serve as guidance in developing clean-energy solutions to replace coal-fired power plants and in shaping the institutions controlling those new systems.¹¹⁹

B. Energy Justice

The energy justice movement applies the principles of environmental justice to the energy economy, with a focus on ensuring that systems fairly disseminate both the benefits and costs of energy services and promote representative and impartial energy decision-making.¹²⁰ Energy justice shifts the traditional energy policy focus from the protection of adequate supplies of conventional fuels to a focus on the long-term consequences of energy policies on individuals and cultures.¹²¹ It also calls for responding to energy injustices—such as the unequal imposition of costs, hazards, and externalities of energy systems on low-income communities predominantly composed of people of color—with policies that promote greater energy efficiency, renewable energy development, and community driven clean-energy projects.¹²² Energy justice advocates demand that future benefits from energy policies and programs be distributed equally, especially considering evidence that some renewable energy programs reflect and exacerbate the inequities of traditional energy systems.¹²³

Energy justice also has procedural elements—demanding meaningful involvement, participation, informed consent in decision-making and public

¹¹⁸ Kuehn *supra* note 105, at 10699.

¹¹⁹ *Id.*

¹²⁰ Benjamin K. Sovacool & Michael H. Dworkin, *Energy Justice: Conceptual Insights and Practical Applications*, 142 *APPLIED ENERGY* 435, 440 (2015) (“[energy democracy] includes procedural justice, which is about free prior informed consent for energy projects, representation in energy decision-making, and access to high quality information about energy”).

¹²¹ *Id.*

¹²² NAACP ENV’T & CLIMATE JUST. PROGRAM, *JUST ENERGY POLICIES: MODEL ENERGY POLICIES GUIDE* 33 [<https://perma.cc/RC27-FK7Y>] (explaining that energy efficiency measures are essential in the fight for environmental and energy justice). *See also* Kathiann M. Kowalski, *Clean Energy Programs Can Help Address Some Racial Disparities, Advocates Say*, *ENERGY NEWS NETWORK* (Jul. 2, 2020), <https://energynews.us/2020/07/02/clean-energy-programs-can-help-address-some-racial-disparities-advocates-say/> [<https://perma.cc/6VK9-APGL>].

¹²³ *See* Deborah A. Sunter et al., *Disparities in Rooftop Photovoltaics Deployment in the United States by Race and Ethnicity*, 2 *NATURE SUST.* 71 (2019).

availability of information about the energy sector—and embraces corrective notions of intergenerational equity in questioning the fairness of resource extraction, energy generation, and resulting pollution using a whole-systems approach.¹²⁴ Energy justice has important implications under the just transition framework as both an analytical tool in assessing past harms and as a decision-making tool guiding energy sector policies and programs.¹²⁵ One example of using energy justice as an analytical tool is by reprioritizing affordability in energy policy, allowing decision-making based on factors outside of traditional cost-benefit considerations.¹²⁶ The NAACP's Just Energy Action Toolkit is instructive of the types of solutions that come from this decision-making framework, including advocating for community-led energy justice legislative campaigns, programs to increase utility accountability, community-created and community-owned clean energy projects and energy cooperatives, as well as other organizing tools for energy justice.¹²⁷

C. Climate Justice

Climate justice applies the principles of environmental justice to the problem of climate change, reframing it as an ethical and political issue. Climate justice is a social movement that seeks equal protection from the impacts of climate change and aims to ensure that those most responsible for creating those impacts bear the costs of transitioning to a green economy.¹²⁸ It responds to the reality that those least responsible for climate change are feeling its effects to a greater extent than actors bearing responsibility by demanding that principles of democracy, sustainability, and social justice be prioritized over market-based solutions in the transition to a clean energy economy.¹²⁹ The climate justice framework recognizes that low-income communities and people of color will suffer most from climate change's

¹²⁴ Benjamin K. Sovacool, *Energy Decisions reframed as Justice and Ethical Concerns*, NATURE ENERGY, May 2016, at 1 [<https://perma.cc/3UN8-NXT9>].

¹²⁵ Sovacool & Dworkin, *supra* note 120, at 435 (arguing that energy justice decision making should promote availability, affordability, due process, good governance, sustainability, inter and intra-generational equity, and responsibility).

¹²⁶ Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, ENERGY POL'Y (Jun. 2017) ("The creation and support of short-term policies that are not sustainable and that contribute to energy injustices but deliver better prices should be sacrificed for medium to longer term sustainable and energy just policies").

¹²⁷ MODEL ENERGY POLICIES GUIDE, *supra* note 122.

¹²⁸ ENV'T JUST. LEADERSHIP F. ON CLIMATE CHANGE, PRINCIPLES OF CLIMATE JUSTICE (2009) [<https://perma.cc/FH88-EVHC>].

¹²⁹ INT'L CLIMATE JUST. NETWORK, BALI PRINCIPLES OF CLIMATE JUSTICE (2002), [<https://perma.cc/QR3U-Z4Y7>].

impacts globally, nationally, and locally, while also encouraging greater procedural availability and involvement of the most affected communities at all levels of government and community engagement.¹³⁰ Climate justice and energy justice have significant overlap. The energy sector is one of the largest sources of carbon emissions globally and nationally; thus, climate justice initiatives often require rectification of past energy injustices.¹³¹

D. Energy Democracy

Energy democracy provides a set of organizing principles for democratically restructuring the energy and electricity sectors through the transition from traditional fossil-fuel-based systems to renewable energy systems in response to environmental injustice and the threat of climate change.¹³² In many ways, energy democracy is a movement born from the convergence of social, environmental, energy, and climate justice principles. It seeks to harness the social change potential of a just transition by embracing a vision of more distributed, locally based energy systems entirely powered by a regionally appropriate mix of different renewable sources.¹³³ Energy democracy principles are founded on a rejection of traditional centralized fossil-fuel-based energy systems, seeking to reconfigure patterns of ownership, profits, and management in recognition of the perpetuation of environmental inequality by government and corporate interests.¹³⁴ Advocates propose that energy infrastructure managed by smaller, local, cooperatively owned businesses would result in more direct community-level economic benefits than traditional energy systems.¹³⁵ Energy democracy provides a socio-political framework aligned with the principles of a just transition, connecting environmentalism with social justice and racial equity.¹³⁶

Community ownership of energy systems is the central feature of energy

¹³⁰ *Id.*

¹³¹ Vivian Foster & Daron Bedrosyan, *Understanding CO2 Emissions from the Global Energy Sector*, WORLD BANK LIVE WIRE (2014), <https://openknowledge.worldbank.org/bitstream/handle/10986/17143/851260BRIOLive00Box382147B00PUBLIC0.pdf?sequence=6> [<https://perma.cc/PE2C-ZNTR>].

¹³² Matthew J. Burke, *Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions*, ENERGY RSCH. & SOC. SCI. (Nov. 2017).

¹³³ Jennie C. Stephens, *Energy Democracy: Redistributing Power to the People Through Renewable Transformation*, ENV'T: SCI. & POL'Y FOR SUST. DEV. (Feb. 13, 2019).

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *Id.*

democracy theory.¹³⁷ Publicly owned utilities have been common in the United States since the 1800s, yet proponents of energy democracy argue that democratic participation and oversight of energy systems has fallen short and produced an inequitable system that yields to fossil-fuel interests.¹³⁸ By focusing incentives and motivations away from profit generation, publicly owned utilities could facilitate a rapid transition to decentralized renewable-based energy, providing increased public involvement in energy policy and decision-making, new employment opportunities, and increased community wealth.¹³⁹ Additionally, decentralized utility systems with greater community representation under the energy democracy framework would allow local preferences and location-specific renewable resource availability to shape each community's transition.¹⁴⁰

III. POLICY ANALYSIS

Correcting racial injustices from coal-fired power plants is possible with the advancement of two primary objectives. First, states, municipalities, and utilities should begin work to promptly decommission the nation's remaining coal-fired power plants as a matter of racial and environmental justice. Second, states and municipalities should aggressively incentivize the replacement of coal-fired electricity generation with a combination of energy storage facilities and community-owned distributed renewable energy generation to avoid replicating or exacerbating existing inequalities in host communities. Part III analyzes several policy mechanisms that could be used to incentivize an equitable transition from coal plants to energy storage and community-owned renewable energy, viewing each of these policies through the lenses of environmental justice, climate justice, energy justice, and energy democracy.

Because of urban coal-fired power plant sites' proximity to load centers and to transmission and distribution systems,¹⁴¹ many of these sites are also

¹³⁷ John Farrell, *Energy Democracy in 4 Powerful Steps*, INST. FOR SELF-RELIANCE (Mar. 1, 2017), <https://ilsr.org/energy-democracy-in-4-steps> [<https://perma.cc/AER9-KHTJ>] (arguing that "4 D's of Energy Democracy" are key in shifting away from the traditional energy system model: distributed power, decentralization, *democracy from ownership*, and disruptive technology) [emphasis added].

¹³⁸ Johanna Bozuwa, *Public Ownership for Energy Democracy*, NEXT SYS. PROJECT (Sept. 2018), <https://thenextsystem.org/learn/stories/public-ownership-energy-democracy> [<https://perma.cc/MJK5-U83K>].

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ Cf. Michael L. Buchsbaum, *Germany Plans to Convert Coal Plants into Renewable Energy Storage Sites*, ENERGY TRANSITION (May 15, 2019),

excellent locations for large energy storage facilities.¹⁴² The location of many of these plants in environmental justice communities also makes them ideally located in relation to community-owned renewable generation.¹⁴³ Energy storage and renewables should be in close geographic proximity; redeveloping these sites into energy storage facilities will transform them from being environmental burdens into environmental benefits.¹⁴⁴ Such conversions would not be entirely new; existing projects in other countries aim to convert coal-fired power plants into energy storage facilities. For instance, government agencies in Germany are working with private companies to develop Carnot batteries—which store energy as molten salt—in decommissioned coal plants.¹⁴⁵ That method of converting coal plants into energy storage facilities involves replacing coal boilers with thermal storage tanks and would be replicable at any coal plant.¹⁴⁶

Converting coal-fired power plants into large energy storage facilities would be the best use of these sites for several reasons. As highlighted above, merely transitioning these facilities from coal to natural gas is inadequate from a climate justice perspective.¹⁴⁷ Moreover, centralized natural gas plants do no more than centralized coal plants to advance the goals of energy democracy. From an environmental justice perspective, natural gas plants also produce other pollutants that have negative health impacts on nearby

<https://energytransition.org/2019/05/coal-plants-into-renewable-energy-storage-sites> [<https://perma.cc/QPS3-E8XY>] (“Additionally, centralized battery stations can also be seamlessly plugged into the grid, helping to balance load with demand and further taking advantage of clean production opportunities”); Chris Baraniuk, *The Giant Coal Plant Converting to Green Energy*, BBC (Aug. 2018), <https://www.bbc.com/future/article/20180821-the-giant-coal-plant-converting-to-green-energy> [<https://perma.cc/5A2H-XLBX>] (“The plants have expensive connections to national grids – meaning that simply knocking them down might not be so smart”).

¹⁴² Cf. David Roberts, *Clean Energy Technologies Threaten to Overwhelm the Grid, Here’s How it Can Adapt*, VOX (Nov. 11, 2019), <https://www.vox.com/energy-and-environment/2018/11/30/17868620/renewable-energy-power-grid-architecture> [<https://perma.cc/BB8R-QMGB>].

¹⁴³ Cf. ADRIAN WILSON ET AL., *COAL BLOODED: PUTTING PROFITS BEFORE PEOPLE* 15 (2012) [<https://perma.cc/2HR9-5WLZ>].

¹⁴⁴ See generally George Hilton, *Decommissioning Coal – an Opportunity for Energy Storage?*, PV MAG. (Apr. 14, 2020), <https://www.pv-magazine.com/2020/04/14/decommissioning-coal-an-opportunity-for-energy-storage/> [<https://perma.cc/U7CQ-UNT8>]; Buchsbaum, *supra* note 141.

¹⁴⁵ Buchsbaum, *supra* note 141.

¹⁴⁶ *Id.* This type of energy storage technology is not new, as concentrated solar power plants have relied on molten salt thermal storage for over a decade.

¹⁴⁷ *Supra* Section I.D.

communities.¹⁴⁸ Replacing coal facilities with non-energy-related development would also be inefficient in many cases because of these sites' advantageous locations for energy systems. Additionally, energy storage is the ideal strategy to overcome the intermittency problem inherent in renewable energy systems, and utilizing existing infrastructure is more efficient than developing additional infrastructure.¹⁴⁹

Converting the nation's remaining coal-fired power plants to energy storage facilities and building out community-owned renewable energy infrastructure will also require significant labor and investment, providing opportunities to economically benefit energy justice communities. In furtherance of a just transition, policy mechanisms should prioritize training and hiring those formerly employed by the coal-fired power plants and local community members to work in the new energy facilities that replace them.

There are many different policies capable of supporting a shift from centralized fossil fuel energy production to distributed renewable energy production. But when analyzing these policies through environmental justice, energy justice, climate justice, and energy democracy lenses, not all policies are equal. Part III first presents a mechanism for municipalities to define populations once burdened by former coal plants as energy justice communities, then analyzes several policies—including renewable portfolio standards, net metering, public benefit funds, Property Assessed Clean Energy programs, and community benefit agreements—through the lenses described above to identify the most equitable policies for achieving a just transition.

A. Defining Energy Justice Communities

To effectively advance the corrective justice goals highlighted above in the context of coal plants, policymakers must first ensure their policy strategies for doing so are narrowly targeted at those communities that have most suffered the burdens of coal-fired power plants. A possible first step toward crafting such policies would be to define and identify these communities and enact policies that more directly channel benefits to them. This article uses the term “energy justice community” rather than “environmental justice community” to place its focus specifically on urban communities that have been harmed by coal plants. While achieving corrective justice for all environmental justice communities is necessary, the policy approaches described here are specifically targeted at energy justice

¹⁴⁸ Hilton, *supra* note 141.

¹⁴⁹ *Id.*

communities. While there is significant overlap between the two, using this narrower definition will ensure that communities harmed by coal plants will receive the benefits of these policies.

Defining an energy justice community is not a straightforward task, and definitions will vary across jurisdictions and programs. When defining such communities, government entities should first identify a geographic radius of land impacted by a specific coal plant's pollution. Public health data, property values, and other relevant metrics can all be helpful in making this determination. For some smaller coal plants, the relevant energy justice community may be a single neighborhood. By contrast, for some larger plants the relevant energy justice community might encompass an entire zip code. Regardless, policymakers defining such communities will need to focus on the adverse impacts of coal pollution when defining the energy justice community to avoid claims of arbitrary or discriminatory standards.¹⁵⁰

Depending on the policy or program being implemented, energy justice communities may be defined by state legislatures, local governments, or administrative agencies. State and local governments must ensure that the energy justice communities themselves have significant input in crafting these definitions. Failure to ensure community input would contravene energy democracy principles and procedural justice, replicating the power dynamics that have historically disenfranchised these communities. Solutions must come from the communities themselves; proposing a one-size-fits-all policy would be antithetical to the goals of energy democracy.

It is important to note that proving direct causation that links harm to a specific coal plant will be impossible in most places because there are multiple industrial polluters that frequently harm environmental justice communities. However, where corrective justice is the guiding principle for policy implementation, proving causation is not necessary; where a coal plant is one of the polluters harming a community, that community should be considered an energy justice community. For the policies proposed below, the units of government implementing those policies must keep corrective justice as the central focus. This will ensure that policies intended to benefit affected communities actually do benefit those communities and address those communities' disproportionate burdens.

¹⁵⁰ Cf. James C. Bonbright et al., *PRINCIPLES OF PUBLIC UTILITY RATES* (2nd ed. 1988), PPUR CH20, 2005 WL 998355.

B. Renewable Portfolio Standards, Carveouts, and Multipliers

Once energy justice communities are clearly defined, policymakers can then begin adapting existing energy policy programs to drive targeted investment in those communities. Renewable portfolio standards (RPSs) are one type of policy that could be adapted in this way. RPSs have long been impactful state-level renewable energy policies, requiring utilities to integrate renewable resources into their energy mix and phase out generation from coal-fired power plants and other nonrenewable energy sources. However, state policymakers can also use “carveout” provisions in RPSs to drive investments in specific types of renewable energy development. Such provisions could similarly be adapted to drive the transition from coal plants to energy storage and community solar projects highlighted above.

RPSs require utilities to source a minimum percentage of their electricity from renewable sources by a specified deadline, representing one of the most important existing policy mechanisms for promoting renewable energy.¹⁵¹ The majority of states have an RPS mandating renewable energy generation at varying amounts.¹⁵² Some utilities own renewable energy facilities—such as solar arrays or wind farms—whereas others purchase the electricity to meet the state RPS.¹⁵³ Some states with an established RPS allow utilities to purchase renewable energy certificates (RECs), indicating that a specified amount of electricity was produced by a renewable source.¹⁵⁴ Of the states that utilize RECs, utilities can purchase the REC either bundled—where the utility also purchases the electricity that comes with the certificates—or unbundled, depending on the structure of the state regulatory regime.¹⁵⁵

Some states have added “carveout” provisions to their RPSs to incentivize investments in specific technologies or strategies.¹⁵⁶ Carveout provisions require utilities to procure a specified percentage of energy from a specified source, usually solar energy or distributed generation.¹⁵⁷ While the use of

¹⁵¹ Steven Ferrey, *Threading the Constitutional Needle with Care: The Commerce Clause Threat to the New Infrastructure of Renewable Power*, 7 TEX. J. OIL GAS & ENERGY L. 59, 62 (2012).

¹⁵² *Id.* at 62-63.

¹⁵³ *Id.* at 63.

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* at 67.

¹⁵⁷ See Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*, 41 HARV. ENV'T L. REV. 43, 45 (2017) (more than half of the states with an RPS include a carveout provision as of 2017).

carveout provisions varies widely among states, some of these programs use multipliers to encourage certain types of renewable development.¹⁵⁸ In Texas, for example, non-wind energy installed after 2005 is provided with a 2x multiplier, meaning that non-wind renewable energy qualifies for twice as many RECs as wind energy per megawatt of energy produced.¹⁵⁹

Although existing RPSs reduce the amount of fossil fuel production—advancing the goals of environmental justice—they ultimately fall short under an energy democracy lens because they fail to transform ownership of energy systems through democratic control and lack corrective justice elements. However, RPS carveout provisions that require a portion of a state’s or utility’s power be sourced from distributed generation have initiated a restructuring of energy systems; under an energy justice lens, these provisions have been instrumental in integrating renewable energy into power systems. In fact, some existing RPS policies may even increase inequalities to the extent they allow the purchase and sale of unbundled RECs, which effectively allows utilities to “pay to pollute” in certain locations, often with racially and socioeconomically disproportionate effects.¹⁶⁰ To effectuate the policy goals laid out in this article, RPSs with carveouts and multipliers should be adopted in all states. These standards and related policies should also be designed to promote greater procedural influence from local community members in new energy development projects, with mechanisms to ensure consistent democratic participation. This will help ensure that environmental and energy injustice is not replicated or exacerbated by applying energy democracy principles and will incentivize community-owned distributed generation.

Ideally, states would first enact RPS carveout provisions that require utilities to phase-out coal-fired facilities, prioritizing the conversion of coal-fired power plants in energy justice communities. Multiplier provisions could then offer substantial additional benefits for renewable and energy storage development within energy justice communities. States without a distributed generation carveout would need to add one.

Specifically, carveouts should focus on communities that have suffered harm from former coal plants. Such a carveout can be structured either as a mandate that requires utilities to source a specified percentage of energy from distributed generation within energy justice communities, or to purchase

¹⁵⁸ Ferrey, *supra* note 151, at 67-68.

¹⁵⁹ *Id.* at 73-74.

¹⁶⁰ See Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ENV’T L. REP. 10681, 10683 (2000) (examining the fairness of RECs in energy systems).

RECs from facilities within those communities.¹⁶¹ If a state decides to structure a carveout with RECs, that state should require that: 1) RECs be purchased as a bundle, with the utility purchasing both the REC and the electricity; and 2) RECs from distributed generation in energy justice communities are given at least a 2x multiplier relative to commercial or utility-scale generation to incentivize utilities to purchase RECs from these communities. For the greatest transformative potential, states could enact these two policies together. Leveraging RPSs in this way would advance corrective justice goals while also laying the groundwork for a more equal distribution of benefits under the just transition framework.

C. Public Benefit Funds

Merely incentivizing community-owned distributed generation in energy justice communities through new RPS multipliers and carveouts is inadequate if financial resources are not available to support the buildout of such renewable energy sources. States with established public benefit funds should utilize those funds to finance community-owned renewable energy in energy justice communities, and states that have not yet established public benefit funds should do so. However, states should exercise great care to ensure that community-owned renewable energy is not financed at the expense of energy efficiency measures, which may currently be supported by public benefit funds.

Public benefit funds are financed by levying system benefits charges onto all electricity customers within a state or within a utility's service area to help finance or subsidize renewable energy and energy efficiency projects.¹⁶² As of May 2016, 20 states and the District of Columbia had public benefit funds, ranging from a voluntary fund that has raised \$100,000 annually (Maine) to a fund seeking to raise \$5.3 billion by 2025 (New York).¹⁶³ Some of these funds target renewable energy, some target energy efficiency, and some target both.¹⁶⁴ Public benefit funds are typically supported by levying customers on a per kilowatt-hour basis, by monthly surcharges, or by

¹⁶¹ Cf. Ferrey, *supra* note 151.

¹⁶² Ferrey, *supra* note 151, at 70-71; Steven Ferrey, *Ring-Fencing the Power Envelope of History's Second Most Important Invention of All Time*, 40 WM. & MARY ENV'T L. & POL'Y REV. 1, 39 (2015).

¹⁶³ Edward A. Holt, *Public Benefits Funds, by State*, CLEAN ENERGY STATES ALL., [<https://perma.cc/A8SE-D4RH>].

¹⁶⁴ *Id.*

requiring investor-owned utilities to spend a specified amount on energy efficiency and renewable energy projects.¹⁶⁵

Public benefit funds can be an important mechanism for encouraging the development of distributed renewable energy generation in energy justice communities, if structured appropriately. Regardless of whether they finance renewable energy systems or energy efficiency upgrades, these funds are important for achieving energy justice objectives because either type of project reduces the energy burden on electricity customers.¹⁶⁶ However, of the two, distributed renewable energy better achieves energy democracy objectives. Energy efficiency programs alone do little to advance energy democracy objectives when a community's electricity generation is controlled by a centralized utility.¹⁶⁷ Public benefit funds that support community-owned renewable energy generation in energy justice communities, on the other hand, can further both energy justice and energy democracy objectives.

Public benefit funds should be specifically targeted to benefit energy justice communities. Currently, many public benefit funds already target low-income communities where residents have high energy burdens.¹⁶⁸ When the initial cost of installing a renewable energy system is prohibitive, public benefit funds should be used to cover up-front costs through grants or through low-interest or interest-free loans. Grants for community-owned renewable energy systems would immediately benefit the community by reducing energy costs and enabling profit from selling excess energy back to the grid. Alternatively, a revolving loan system may allow funds to benefit more communities in the same amount of time.¹⁶⁹ It is important to ensure that funds actually do benefit energy justice communities. Legal rules that require public benefit funds to only be used to finance renewable energy development owned by energy justice communities or its residents would ensure that such policy changes advance both corrective justice and energy democracy goals.

¹⁶⁵ *Id.*

¹⁶⁶ *Cf.* NAACP ENV'T AND CLIMATE JUST. PROGRAM, JUST ENERGY POLICIES: MODEL ENERGY POLICIES GUIDE 29 [<https://perma.cc/RC27-FK7Y>].

¹⁶⁷ *Id.* at 14.

¹⁶⁸ *See* Holt, *supra* note 163.

¹⁶⁹ *Cf. Revolving Loan Funds*, OFFICE ENERGY EFFICIENCY & RENEWABLE ENERGY, U.S. DEP'T ENERGY, <https://www.energy.gov/eere/slsc/revolving-loan-funds> [<https://perma.cc/F3HN-7DMB>].

Policymakers adopting such reforms should also be careful to preserve existing energy efficiency funding for energy justice communities. This is crucial from an energy justice standpoint because increasing energy efficiency in homes can significantly reduce occupants' energy burdens.¹⁷⁰ Analyzing these funds through both energy justice and energy democracy lenses demonstrates the importance of carefully designing such funds, as achieving both objectives requires careful planning and consideration. Which projects qualify for public benefit fund financing, which communities are targeted, and whether funds are distributed as grants or as loans are all considerations with important implications for achieving energy justice and energy democracy objectives.

D. Property Assessed Clean Energy Programs

Another policy mechanism that can be used to support a just transition in energy justice communities is Property Assessed Clean Energy (PACE) programs. PACE programs fall into two categories: Residential PACE (R-PACE) and Commercial PACE (C-PACE). State legislatures should leverage these programs to advance the goals highlighted above by enacting PACE-enabling statutes that authorize municipalities to implement PACE programs in energy justice communities. Local governments should then use C-PACE programs to finance the conversion of coal-fired power plants into energy storage facilities. R-PACE programs should be used to promote the buildout of distributed renewable energy generation in energy justice communities where most homes are owner-occupied.

PACE programs provide property owners a financing mechanism for their initial investment in a renewable energy or energy efficiency system.¹⁷¹ These programs typically operate through special voluntary assessments attached to land—rather than the owner—and are repaid over a set period of time, such as 20 years.¹⁷² The PACE assessment then remains with the

¹⁷⁰ Cf. MODEL ENERGY POLICY GUIDE, *supra* note 166 at 29.

¹⁷¹ *Property Assessed Clean Energy Programs*, OFFICE ENERGY EFFICIENCY & RENEWABLE ENERGY, U.S. DEP'T ENERGY, <https://www.energy.gov/eere/slsc/property-assessed-clean-energy-programs> [<https://perma.cc/SZ2F-6MV4>].

¹⁷² A special assessment is a recording of a liability to the local government in exchange for an investment that benefits the property owner. In the case of C-PACE, a property improvement usually involves energy enhancements. A lien on the property secures the assessment and obligates the property owner to repay the investment in the improvement. C-PACE assessments are voluntary and typically viewed as special tax assessments because they are separate from actual real property taxes

property—even if the property is transferred to another owner—and is repaid in the same manner as property taxes.¹⁷³ PACE-enabling statutes outline the administrative roles of local governments, which are empowered to authorize PACE programs in their jurisdictions.¹⁷⁴ It is important that both the state enabling statute and the local authorization of PACE programs provide proper consideration to procedural justice concerns.

The advantages of PACE financing programs include the elimination of a large down payment, frequently a barrier to the installation of distributed renewable energy, and lower interest rates.¹⁷⁵ However, PACE is only advantageous to property owners—not renters—and can require a lot of administrative work, which may be prohibitive for some communities.¹⁷⁶ Perhaps because of these limitations, PACE is not widely used for residential properties, with only 17 active programs existing in three states.¹⁷⁷ C-PACE is more widely used, with programs existing in over 35 states.¹⁷⁸

R-PACE programs will frequently be of little utility in advancing energy justice or energy democracy objectives. Black Americans are much less likely to own the homes they live in; more than 50% of Black Americans live in rented homes.¹⁷⁹ Similarly, one of the largest barriers to distributed generation in low-income communities is the renter/homeowner divide; homeowners are less likely to cover the initial cost of installing a renewable energy system if the tenant, rather than the homeowner, receives the benefit.¹⁸⁰ Conversely, if the benefit accrues to the homeowner, distributed

and are voluntary rather than mandated—they do not apply to all properties in a jurisdiction.

Id.; GREG LEVENTIS & LISA SCHWARTZ, COMMERCIAL PACE FINANCING AND THE SPECIAL ASSESSMENT PROCESS: UNDERSTANDING ROLES AND MANAGING RISKS FOR LOCAL GOVERNMENTS 2, fn. 3 (2019).

¹⁷³ *Property Assessed Clean Energy Programs*, *supra* note 171.

¹⁷⁴ LEVENTIS & SCHWARTZ, *supra* note 172, at 2, 5. In some states, local governments administer all components of a PACE program, while other states delegate certain administrative functions to third parties. Delegation of administrative functions can greatly reduce the labor commitment required of local governments. *Id.* at 10.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* An analysis conducted by the Commercial PACE Working Group found that administrative labor commitment was the primary concern of municipalities that were hesitant to create PACE programs. *Id.* at 2.

¹⁷⁷ *Property Assessed Clean Energy Programs*, *supra* note 171.

¹⁷⁸ *Id.*

¹⁷⁹ CONG. BLACK CAUCUS FOUND., INC., AFRICAN AMERICANS AND CLIMATE CHANGE: AN UNEQUAL BURDEN 21 (2004) [<https://perma.cc/4HKX-5QJ5>].

¹⁸⁰ Deborah Behles, *From Dirty to Green: Increasing Energy Efficiency and Renewable Energy in Environmental Justice Communities*, 58 VILL. L. REV. 25, 60 (2013).

renewable energy systems do little to advance the corrective justice concerns of tenants.¹⁸¹ R-PACE programs also would not increase electricity consumers' control over the production of electricity because decisions would be made by landlords.

However, R-PACE programs illustrate the importance of a community-by-community approach. Where most houses are owner-occupied, R-PACE programs may be an important part of a comprehensive strategy for achieving a just transition. Local governments should analyze whether the energy justice communities within their jurisdiction consist of predominantly owner-occupied or renter-occupied housing. Where most homes are renter-occupied, local governments should refrain from authorizing R-PACE programs because authorization would fail to advance energy justice and energy democracy. While replacing fossil fuel energy generation with renewable energy systems addresses the disproportionate distribution of environmental harms, R-PACE programs may not equitably distribute benefits due to the renter/homeowner distinction.

On the other hand, C-PACE programs can be used to facilitate the conversion of coal plants to energy storage facilities and are likely more beneficial in achieving the policy objectives set forth in this article. C-PACE could alleviate some expenditures of this conversion process by providing the financial investment required to install energy storage technology. Installation of large energy storage facilities would further energy justice and energy democracy goals by providing infrastructure that supports the development of community-owned renewable energy generation and addresses the intermittency problem. However, if the funds used to cover the costs of installing energy storage systems are diverted from a source that would otherwise support the development of community-owned renewable energy, utilizing C-PACE could have detrimental effects from an energy democracy perspective. It is important to scrutinize C-PACE funding sources to ensure that states and utilities do not pursue utility-owned energy storage at the expense of community-owned renewable energy generation.

The two categories of PACE programs have different implications for achieving policy goals. While R-PACE programs offer limited potential for achieving justice and equity objectives, C-PACE programs have potential to be an important part of the just transition.

¹⁸¹ *Id.* at 63.

E. Community Benefits Agreements

Community benefits agreements (“CBAs”) are another mechanism with potential to make the renewable energy transition more equitable for energy justice communities. Widespread implementation of CBAs, which require involving all stakeholders in renewable energy development agreements, could ensure that the distributive and procedural injustices found in traditional energy systems are not replicated. Particularly for energy justice communities, states and municipalities should mandate CBAs for energy developments. This would entail replacing fossil-fuel systems with renewable generation and energy storage developments to ensure that environmental, economic, and employment related benefits are captured within those communities.

CBAs are contracts negotiated between prospective developers and a coalition of community representatives that ensure the inclusion of communities most impacted in the planning of the project and retention of its economic benefits.¹⁸² In a typical CBA, developers are given assurances of community support for a specific proposal in return for inclusion of provisions that provide immediate and long-term benefits to the community.¹⁸³ For example, developers can include “local hire” and job training programs; minority hiring minimums; inclusion of affordable housing in the development; funding for community services and programs; and environmental remediation guarantees.¹⁸⁴ Essentially, CBAs convert what were once “handshake” promises developers made to affected communities, into provisions that are legally enforceable.¹⁸⁵ CBAs have had relative success in increasing democratic participation and ensuring sustainable development, with potential to be a transformative tool in shaping the distribution of benefits from technological innovation.¹⁸⁶

¹⁸² Amy Levine & Patricia E. Salkin, *Understanding Community Benefit Agreements: Equitable Development, Social Justice and Other Considerations for Developers, Municipalities and Community Organizations*, 26 *UCLA J. ENV'T L. & POL'Y* 291 (2008).

¹⁸³ *Id.*

¹⁸⁴ JULIAN GROSS, *COMMUNITY BENEFITS AGREEMENTS: MAKING DEVELOPMENT PROJECTS ACCOUNTABLE* 9-10 (2005).

¹⁸⁵ Julian Gross, *Community Benefits Agreements: Definitions, Values, and Legal Enforceability*, 17 *J. AFFORDABLE HOUS. & CMTY. Dev. L.* 31 (2007).

¹⁸⁶ *See Policy & Tools: Community Benefits Agreements and Policies in Effect*, P'SHIP FOR WORKING FAMS., <https://www.forworkingfamilies.org/page/policy-tools-community-benefits-agreements-and-policies-effect> [<https://perma.cc/3ECX-XW26>].

Because of their inherent flexibility, CBAs could be tailored to provide specific guarantees related to environmental justice, economic benefits, and employment for energy justice communities.¹⁸⁷ Depending on their priorities, communities where energy storage and large-scale renewable energy projects are proposed could use CBAs. CBAs help communities negotiate for procedural fairness in development and provide for compliance with the contract's terms by establishing or allocating money to community programs thereafter.¹⁸⁸ This would be especially true if CBAs were incorporated into renewable energy projects subsidized by public benefits funds and C-PACE programs within energy justice communities. CBAs within development agreements for projects that require an employment representative of the host community can redress distributive injustice by ensuring economic benefits stay within those communities. Similarly, allocating funding for community services and programs from the project's revenue would advance corrective justice goals and could have enduring impacts on historically harmed communities. For example, CBA provisions that publicize confidential data of a proposed development could directly address common procedural injustices.

Alternatively, using community benefits agreements in renewable energy developments has drawbacks when considered as a mechanism to foster a just transition. As proposed energy-related development grows in scale, the potential for positive change grows through the inclusion of CBAs within the development agreement. However, the largest generation and storage facilities will likely be centrally owned and operated, which fails to promote community ownership of energy systems and goes against the principles of energy democracy. CBAs negotiated without the involvement of all stakeholders may exacerbate injustice. When populations within communities are unable to participate in negotiations—because they lack the necessary means to organize successfully, lack motivation due to historic distrust, or otherwise—decisions will likely still replicate the inequalities of traditional energy systems. Additionally, communities have encountered issues enforcing the provisions of CBAs because of poor drafting or lost support for upholding the CBAs terms when ownership is transferred during development.¹⁸⁹

However, carefully crafted CBAs that have buy-ins from all stakeholders and developers could play an important role in achieving greater equity in

¹⁸⁷ Levine & Salkin, *supra* note 182.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

energy systems during the transition period. While states or municipalities would be free to determine whether all energy-related development or only developments meeting a monetary threshold would be required to engage in negotiations with affected communities before projects could be approved, major projects should be included as well. Major projects include the construction of utility-scale renewable generation and the conversion of former coal-plants into energy storage facilities. By doing so, developers will have an expectation that community support for projects will rely on effective compromise with communities that have historically been harmed by energy related development.

With a White House that seems committed to promoting corrective justice and equitable transitions in energy justice communities, there has arguably never been a better time for federal, state, and local governments to pursue these policy goals. In January 2021, newly inaugurated President Biden signed Executive Order 14,008, requiring “the identification and delivery of Federal resources to revitalize the economies of . . . power plant communities”, and establishing a goal that “40 percent of the overall benefits [of certain Federal investments] flow to disadvantaged communities,” among other things.¹⁹⁰ Focus areas for these investments include clean energy, energy efficiency, training and workforce development, and remediation and reduction of legacy pollution.¹⁹¹ Enacting the proposed policies would not only advance environmental justice, energy justice, climate justice, and energy democracy, but would also align with the policy goals of President Biden’s Executive Order, potentially attracting significant federal investment to local communities. Including CBAs in projects that utilize this federal funding could help ensure that energy justice communities see the benefits of these programs.

CONCLUSION

Coal-fired power plants that have long contributed to racial and environmental injustices should be replaced with cleaner and more sustainable forms of energy development. These forms of energy development can be used to promote corrective justice and economic vitality within low-income and communities of color. Fortunately, there are many useful policy mechanisms for facilitating this transition, which environmental justice advocates have recommended for years. The environmental justice movement arose from the racial justice movement and has a long, rich history

¹⁹⁰ Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7619, 7628, 7632 (Feb. 1, 2021) [alteration added].

¹⁹¹ *Id.* at 7632.

in this country. The racial justice movement, which has once again forced a national reckoning with the abysmal history of race relations in the U.S. following the public killing of George Floyd in the summer of 2020, compels the nation to intensify its focus on environmental and energy injustices.

Systemic racism has long exhibited itself in the disproportionate distribution of polluting energy facilities, including coal-fired power plants, just as clearly as it exhibits itself through the disproportionately high rate of police killings of Black Americans. Because racial justice, environmental justice, and energy justice are interconnected, truly achieving justice and equity in the U.S. will require a whole-systems approach to these problems.

Analyzing coal-fired power through the lenses of environmental justice, energy justice, climate justice, and energy democracy reveals potential strategies to better address these problems. Policies to incentivize a just transition in coal power host communities must prioritize community input and channel targeted benefits to those who have suffered the most harm from energy injustices. Additionally, care must be taken to ensure that existing inequalities are not exacerbated or replicated in the transition. Merely shifting from fossil-fuel energy generation to renewable energy is inadequate, as that strategy can exacerbate and replicate existing inequalities if it is not approached in a way that is mindful of justice and equity considerations. Transitioning from centralized energy systems to distributed generation puts the power back into the hands of people who are affected by these decisions. Fully decommissioning coal-fired power plants—especially those located in low-income and communities of color—must be prioritized.

Also, utility control over energy systems should be reexamined under the framework of this article. Policies such as RPS carveouts and multiplier provisions that incentivize community ownership, public benefit funds, PACE programs that make financing available for energy justice communities, and community benefits agreements within renewable energy development proposals should be used to address the inequalities rampant in traditional energy systems. Intently crafting and advancing such policies would bring the nation closer to a truly sustainable and equitable energy system.

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