



# Discussion Draft: Securing Climate Justice Investments in New York's Climate Leadership and Community Protection Act

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## Executive Summary

In this White Paper, we step back from the everyday back-and-forth of policymaking to consider core principles for delivering on climate justice in New York State. How can the state effectively deliver on the goals legislated in the 2019 Climate Leadership and Community Protection Act (CLCPA), most notably its target of delivering 35% to 40% of all climate-related investments to disadvantaged communities? The stakes are high for New York residents—and for all Americans, as the federal government is also developing its approach to targeted investments. The stakes are higher still as the climate emergency threatens ever-escalating extreme weather, and as the levels of climate-oriented investment grow higher and higher. Can the State do its part in decarbonizing the global economy, while ensuring that climate safety is equitably shared across New York State? Can members of frontline communities—who have borne the disproportionate brunt of assorted harms, suffered the effects of racist public-private investments, and been most exposed to environmental harms—finally receive their fair share of new investment, while gaining the power to decide how their communities change?

In this paper, we review the exciting vistas opened by the CLCPA's recent passage, and we focus on the challenge of delivering deep decarbonization and increased equity at the same time. Next, we review social scientific research on how the country and state ended up with such stark, compounding inequalities of race and class, and how decades of racist patterns of public-private investment set the stage for the current crisis of environmental injustice; and we review how social movements and unions have developed compelling solutions for dismantling these inequalities. We then review how California has confronted its environmental injustices with its program of targeted investments in disadvantaged communities that has so greatly influenced New York and federal policymakers; and we review the achievements and lingering tensions that have come from that approach. Finally, based on that analysis, we outline a set of core principles to guide New York State policymakers, given in the form of recommendations.

As we revise this Discussion Draft in February 2022, we are heartened to see public materials from the state’s Climate Action Council and Climate Justice Working Group that echo many of the recommendations found in this report.<sup>5</sup> We discuss some of these convergences in the report text, especially sections 4.2 and 4.3.

## Summary of recommendations:

1. We recommend that the State adopt a broad “high-road” economic development paradigm for climate investment in general. The NYJ40 would be seen as a key plank in that broader paradigm. The more the State advances goals of racial, economic, and environmental justice through its general investment framework, across the geography of the entire state, the easier it will be to resolve the tensions inherent in the targeted investment approach of the NYJ40.
2. Within the NYJ40 framework, we urge a “both/and” approach to quantifying the benefits of green investment. We urge on the one hand that at least 40% of public investment dollars be allocated to disadvantaged communities; and we urge the requirement that additional, less easily quantified benefits (like the health benefits of pollution reduction) be demonstrated for disadvantaged communities. Because we do not consider it coherent or feasible to precisely quantify the percentage of overall health benefits in the state that could be attributed to particular geographic locations, we see the metric of dollars invested as the most reliable basis for implementing the 40% mandate. We note that this is how targeted climate investment is assessed in California, the first—and most experienced—major jurisdiction to undertake this kind of policy. Finally, we urge the adoption of informal norms whereby 40% would be seen as a floor, not a ceiling. The State should aim for a target of 50% or above, especially given the

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<sup>5</sup> New York State Department of Environmental Conservation, “Climate Justice Working Group DRAFT Disadvantaged Communities Criteria”; New York State Department of Environmental Conservation and New York State Energy and Research Development Authority, “New York State Climate Action Council Draft Scoping Plan.”

likely incorporation of low-income individuals state-wide (ie, beyond just the individuals located in disadvantaged communities), as discussed in Section 4.3.

3. We urge the State and civil society partners to strongly consider using more than a single, unilinear scale of socio-environmental vulnerability to define disadvantaged communities. We survey the tensions caused by the single, unilinear scale approach in California, while recognizing its benefits. We discuss a handful of options to compliment a conventional unilinear scale, allowing for a more sophisticated and flexible mechanism to allocate extremely large sums of money to where it will be most equitably spent, based on particular program objectives.
4. We urge the State to take a public ownership stake in all offshore wind developments. We see this as an example of a broader imperative, whereby the State should benefit financially from the results of its public green investments. We argue that across the world, offshore wind development is already being driven by the public sector. Three of the world's five largest offshore wind developers are government-owned. Why should New York State not also benefit from this government investment-driven sector? We urge that all revenues from public ownership stakes in offshore wind be distributed according to NYJ40 criteria.
5. Finally, we argue that community control along equitable lines will require community participation—including of labor groups like unions—throughout the entire policy process, from the earliest stages through governance and implementation. We argue that asymmetric access to information and expertise tends to disempower community groups. We urge a major investment by New York State into academic research centers that would democratize access to essential information and data, enabling communities to participate in climate and economic governance as fully-informed partners. Of course, community members should have access to all opportunities provided by such funding, in terms of sharing the research, gaining access to degree programs, and so on.

# 1. Introduction

With the 2019 Climate Leadership and Community Protection Act (CLCPA), New York State has staked out a bold leadership position on climate action. Two features of the plan stand out: its strong decarbonization timelines and its commitment to ensuring that climate action lifts up the very communities that have suffered most from economic and environmental disadvantage in recent decades. How can these two goals reinforce each other? How in particular must the state deliver benefits to frontline communities in ways that ensure climate stabilization, while deconstructing existing inequalities?

In this white paper, we make the case for a deep, democratic justice approach to equitable decarbonization. We review the California precedent that has informed New York's policy process, and we discuss key tensions that have arisen from California's experience of climate mapping and climate equity investments. Building on those lessons, we lay out tensions and possible pathways to conduct climate mapping that captures a broad range of social and economic factors, and uses multiple layers instead of just one layer for directing investment, depending on the policy area; we illustrate the benefits and drawbacks of different methods for quantifying a definition of frontline community; we recommend the most expansive possible definition of which public investments should be subject to the principle of delivering concrete benefits to disadvantaged communities, with a focus on using a public stake in off-shore wind to deliver substantial community benefits; we recommend a form of investment that maximizes community control; and we recommend a whole-state geography approach to deconstructing racial inequalities, including mass incarceration, in part by reducing low-income rural areas' dependence on prisons as an engine of job stability, achieved through alternative strategies of green economic development. The way that we define, measure, and operationalize "benefit" and "disadvantaged communities" will have long-lasting consequences for New York's communities—and for communities across the country as well, now that New York is a national leader in climate policy.

As we revise this Discussion Draft in February 2022, we are heartened to see public materials from the state’s Climate Action Council and Climate Justice Working Group that echo many of the recommendations found in this report. We discuss some of these convergences in the report text, especially sections 4.2 and 4.3.

The state has promised to deliver 40 percent greenhouse gas (GHG) emissions reductions in absolute terms from 1990 levels by 2030, and 85 percent GHG emissions reductions by 2050. Perhaps most remarkably, the state promises to generate 70% of its energy from renewable sources by 2030, and to finalize a carbon-neutral energy sector by 2040. No state has legislated a more ambitious timetable. Yet we also note that federally, the Biden administration is committed to an even more ambitious timeline: total decarbonization of the electricity sector by 2035, and net zero carbon emissions for the country by 2050. These are not yet enshrined in legislation. This surely signals that New York State’s ambitious targets should be seen as a starting point; an accelerated timeline is likely.

But decarbonization is more than a simple engineering challenge; energy isn’t produced, distributed, and consumed in a social vacuum. On the contrary, carbon emissions are produced in a complex social world riven by inequalities.<sup>6</sup> And the impacts of those emissions, in the form of extreme weather, also harm people and communities unequally—largely on the basis of already existing inequalities of race, class, gender, and nation. The CLCPA recognizes this. It sets a target whereby 40% of the benefits of climate investments go to “disadvantaged communities,” with a minimum level set at 35%. The legislation’s definition of the *investment* categories to which the 40% should apply is ambitious and broad; the Act calls for New York State to:

Invest or direct available and relevant programmatic resources in a manner designed to achieve a goal for disadvantaged communities to receive forty percent of overall benefits *of spending on clean energy and energy efficiency programs, projects or investments in the areas of housing, workforce development, pollution reduction, low income energy assistance, energy, transportation and economic development.*<sup>7</sup> (Our emphasis.)

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<sup>6</sup> Sovacool, “Who Are the Victims of Low-Carbon Transitions?”

<sup>7</sup> State of New York, “NY State Senate Bill S6599.”



In this paper, we use NYJ40 as a shorthand for the 40% target. The definition of “benefit” is ambivalent in the legislative, seeming to encompass more than just dollars spent, but leaving considerable room for subsequent clarification.

We note that these targets encompass not just decarbonization, but also investments in adaptation. Note, once again, that the state’s leadership has inspired a comparably ambitious federal plan. The Biden administration has now adopted the target of 40% benefit to disadvantaged communities.

While some would be tempted to see these two broad goals—rapid decarbonization and increased social equity—as competing for attention and resources, we see the opposite: two mutually reinforcing projects. In our view, climate action will be easiest to sustain, and more effective in practice, when it is equitable. And pursuing greater equity can solidify support for decarbonization. After all, remember that the fastest period of government-backed economic transformation in the country, the New Deal and war mobilization and of the 1930s and early 1940s was also a period of unparalleled expansion in social rights, investment in communities, and reduction of broad inequalities. Along those lines, this paper outlines a “high road” framework of economic development for New York State whereby a focus on equity and environmental justice would go beyond the question of targeted investments in particular communities, to inform a broader paradigm of economic change that foregrounds economic democracy and racial justice.

The devil, of course, is in the details. In the New Deal period, the particulars of public policy often reinforced racial inequality, delivering the greatest social benefits to white Americans.<sup>8</sup> Such a catastrophic development can never be repeated. In the effort to deliver economic *and* racial equity in the great green transition of our times, policy choices in the early 2020s will be decisive. Nearly a century ago, the details of how New Deal institutions directed subsidized loans to largely white communities—through a practice now called red-lining—would shape racial inequalities for decades. Today, we must tailor the NYJ40 principles of equity mapping and targeted investments to deliver prosperity that dismantles inequalities. Detail matters.

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<sup>8</sup> Katznelson, Ira. *Fear Itself: The New Deal and the Origins of Our Time*. New York and London: Liveright, 2013.

Fortunately, New York is not going first. In Part 2 of the paper, we review the history of the climate justice movement in the United States, and how these have intersected with the institutional landscape of New York State's climate policy apparatus. Next, in Part 3, we look at the pioneering models of targeted climate action that were implemented in California. Each has valuable lessons for New York to learn from.

In Part 4, we outline in broad terms what a just economic development agenda for New York State would look like, take up two key tensions embedded in the CLCPA—tensions between a dollars-first and more holistic definition of benefit; and, tensions between different methods of defining and mapping disadvantaged communities—and then we discuss the case for the State to take a public ownership stake in offshore wind, and to fund research that EJ communities could use to maximize community control of investments spurred by the CLCPA and other climate legislation.

This draft white paper also includes a mapping appendix and a discussion of Washington State's attempt to improve upon the California model. Our next draft will more maps pulled from our mapping engine, with implications discussed for the CLCPA. We will also include a brief discussion of research needs for the state (as hinted at in Section 4.5).

Ultimately, our view is that the goal of the CLCPA should be to entwine climate investment within a broader policy framework of equitable development, rather than abandoning climate policy as a mere sub-sector of public priority.

## 2. History and Precedents

The United States is marked by profound geographic inequalities of race and class - and New York State reflects these patterns. Perhaps starkest is the country's residential segregation, the consequences of which include racialized inequality in exposure to toxins and other environmental harms. Since the abolition of slavery, patterns of joint public and private investment have been the major drivers of this spatial inequality nationwide. To inform climate justice policies premised on eradicating racialized and

geographic inequalities, in New York State or elsewhere, we need to revisit the ways in which investments, largely through various forms of public-private partnership, caused the inequalities that we seek to dismantle this decade.

## 2.1 Public policy, public-private investment landscapes, and the production of racialized space

After the abolition of slavery, Reconstruction marked a moment of possibility for reparations, a new beginning for a country built on the backs of slaves. During the Lincoln era, nearly 40,000 freed slaves were settled on 400,000 acres in Georgia and South Carolina. This raised the possibility of channeling public and private investment into Black agricultural wealth-building; for example, each family of freed slaves were allotted 40 acres of land exclusively for their use. But after President Lincoln's assassination, President Johnson reversed this ruling and returned the land to its previous white owners. In 1867, Congressman Thaddeus Stevens, fiercely opposing Johnson, sponsored a bill for the redistribution of land to African Americans.<sup>9</sup> This bill failed. Reconstruction ended in 1877, and reparations for slavery were not addressed. Instead, Jim Crow laws entrenched separate and (un)equal conditions through the following decades.

After the end of the Jim Crow era, its structural contours persisted in many ways through public disinvestment, serial forced displacement, urban renewal, planned shrinkage, redlining and other discriminatory policies—and these arrangements were the result of concerted public-private partnerships and investment. Federal, state, and local policies all played a critical role in contributing to the evolving “urban crisis” and racial residential segregation in the United States during the 20<sup>th</sup> century. The history of American housing policy in particular has demonstrated how the state influences the production of urban space via decisions about what to legislate (and proactively enforce) and what to leave unregulated (and passively neglect). It is necessary to revisit this

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<sup>9</sup> Du Bois, *Black Reconstruction in America*.

history, as the story of place-based environmental injustice today has been profoundly shaped by the real estate policies and investments that have created today's landscape of racialized segregation.

In the 1930s, the New Deal laid the groundwork for massive public investment in a two-tiered housing system: 1) federally-backed mortgages and subsidies for private homeowners, especially for white people, and 2) public housing for the poor and very poor (over time, this became disproportionately people of color).<sup>10</sup> The GI Bill (1944) reinforced racial segregation during post-war deindustrialization by providing large housing and education subsidies to white veterans, followed by huge federal investments (often carried out via local governments) in urban renewal, transportation infrastructure, and the razing of public housing to spur (white) suburbanization.<sup>11</sup> During this time, racial discrimination continued to be enshrined in federal housing policy via the legacies of “redlining” maps drawn by the Home Owners’ Loan Corporation (HOLC) in the 1930s to mark the supposed financial risk of “undesirable” Black neighborhoods.<sup>12</sup>

The federal government did not outlaw racial discrimination in the sale, rental, and financing of housing until the Fair Housing Act (FHA) in 1968, shortly after it had expanded its housing programs under the Housing and Urban Development Act (HUD) in 1965. The FHA was seen as landmark case in the civil rights movement, perhaps signaling the end of racial discrimination and residential segregation.<sup>13</sup> But the segregation of Black communities remains as deeply entrenched today as in the years leading up to and following the FHA in 1968.<sup>14</sup> This is partly due to federal government actions in excluding Black Americans from the majority of the private housing market, and from the momentum resulting from redlining and real estate practices interweaving race with financial risk during the 1930s and 1940s. As the sociologist and policy scholar Jacob Faber writes, “By conflating race with mortgage default risk and home equity growth, these policies not only justified racial discrimination, but also created a

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<sup>10</sup> Radford, *Modern Housing for America Policy Struggles in the New Deal Era*.

<sup>11</sup> Geismer, *Don't Blame Us.*; Sugrue, *The Origins of the Urban Crisis.*; Taylor, *Race for Profit*.

<sup>12</sup> Rothstein, *The Color of Law*.

<sup>13</sup> Massey and Denton, *American Apartheid*.

<sup>14</sup> Krysan and Crowder, *Cycle of Segregation*.

marketplace whose metrics of risk made discrimination necessary ... Although segregation is often considered to persist due to ‘inertia,’ [Krysan and Crowder 2017] suggest ‘momentum’ is a more accurate metaphor due to social processes resulting in the ‘churning forward of racially disparate residential mobility patterns ... HOLC’s segregationist logic carried ‘momentum’ through subsequent federal and local policies as well as private institutions (e.g., mortgage lenders)”.<sup>15</sup>

While much of the foundation for the urban crisis and contemporary racial segregation was created via proactive federal, state, and local policymaking and enforcement, Taylor (2019) argues that the central failures of the FHA to produce racial equality in housing were also due to strategic organizational neglect from the federal government: “Lackadaisical management, erratic regulations, and trenchant racial discrimination combined with the end of redlining and the predacious inclusion of formerly excluded Black urbanites allowed the real estate industry to bleed inner cities dry.”<sup>16</sup> This point is crucial for the consideration of environmental justice policymaking. Progressive public policies will fail if there is not adequate commitment from public regulatory bodies to enforce and implement policies, and to ensure that private economic actors follow the letter of the law (rather than allowing them to flout policy through lax enforcement and regulation). The CLCPA is premised on ongoing public-private partnerships—precisely the arrangement that has produced racialized segregation in the first place!

Taylor describes how in the 1960s and 1970s, the public-private partnerships between real estate and the federal government created a tiered financial system that allowed capital to be drained from Black neighborhoods with banks and investors shielded from liability, or what she describes as *predatory inclusion*. Taylor writes, “Even as access to credit liberalized during the 1970s, it was happening through the acceptance of racially tiered housing markets. The Equal Credit Opportunity Act of 1974 finally made discrimination in the distribution of credit on the basis of race, gender, or marital status a crime ... The disproportionate poverty and underemployment in Black communities combined with their historic exclusion from public and private initiatives

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<sup>15</sup> Faber, “We Built This.”

<sup>16</sup> Taylor, *Race for Profit*.

in development and residential rehabilitation efforts meant that urban Black communities were in poorer condition. These conditions created by racism and exclusion were, once again, articulated as risk. The re-emergence of the discourse of risk within the housing industry legitimized new stringent regimes of fees, fines, higher interest rates, and other modes of extraction.”<sup>17</sup>

Here local politics played an important role, often in tandem with the local interests of private real estate. The white riots and violence described by Sugrue in Detroit during the 1940s and 1950s coalesced as homeowners’ associations and neighborhood covenants, aided by the blockbusting strategies of real estate actors.<sup>18</sup> Local governments were quick to bow to the pressure of homeowners’ associations and real estate in failing to audit covenants or prosecute discriminatory behaviors under the FHA. These collaborations reflected a long history of strategic use of state apparatus by private real estate interests, who were also very active in sponsoring local politicians during the New Deal era. For example, the Labor Housing Conference proposed social housing (or “modern housing”) and was defeated during the 1930s through a combination of public-private partnerships, which had ripple effects decades later. As the historian Gail Radford writes, “A major postwar offensive against public housing mounted by real estate business groups that linked directly assisted construction with communism was an important impediment to the acceptance and growth of such programs ... Public and private entities fostered the notion, central to the neoliberal turn of the 1970s, that equity is earned. Reforms to New Deal policy were seen as threats to Americans’ “hard work” and “investments” in single-family homes, often with no acknowledgement of the subsidies and assistance from federal, state, and local governments making this possible, such as FHA structuring of the mortgage market, tax benefits, and infrastructure construction.”<sup>19</sup>

Combining the history of federal and local housing policy with an analysis of the racialized political economy of place and capital accumulation helps to provide a holistic picture of how public-private partnerships built the current landscape of racial segregation in the United States. As Sugrue summarizes succinctly: “Private-sector

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<sup>17</sup> Taylor.

<sup>18</sup> Sugrue, *The Origins of the Urban Crisis*.

<sup>19</sup> Radford, *Modern Housing for America Policy Struggles in the New Deal Era*.

discrimination was neither the reflection of the invisible hand of the free market, nor the consequences of blacks acting in accordance with a preference to live in segregated neighborhoods. Rather, it was a direct consequence of a partnership between the federal government and local bankers and real estate brokers. In fact, the boundaries between the public and private sectors in housing were blurry in the postwar period. Leading developers, bankers, and real estate executives frequently traveled the road between private practice and government service.”<sup>20</sup> These public-private partnerships unloaded the risks associated with unbridled capital accumulation in real estate onto local tax bases and minority consumers rather than speculative investors. A key to this shift was investing in public and private projects that supported the facade of free choice (homeowners *choose* to take on risks of ownership, which makes equity *earned*) while also working at all levels to constrain and manage residential mobility for the sake of “coherence” in the speculative real estate market.<sup>21</sup> As Kenneth Jackson describes this neoliberal housing environment in *Crabgrass Frontier*: “The prevailing myth is that the postwar suburbs blossomed because of the preference of consumers who made free choices in an open environment ... [but] because of public policies favoring the suburbs, only one possibility was economically feasible ... While it was a national purpose to build subsidized highways and utilities outside of cities, it was not national policy to help cities repair and rebuild aging transit systems, bridges, streets, and water and sewer lines. Thus, suburbanization was not an historical inevitability created by geography, technology, and culture, but rather the product of government policies.”<sup>22</sup>

## 2.2 Racialized environmental relations, land use, and energy policy

The history of American housing policy has been about the public-private project of *racializing* financial risk and reward, which has enshrined and reinforced racial

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<sup>20</sup> Sugrue, *The Origins of the Urban Crisis*.

<sup>21</sup> Logan and Molotch, *Urban Fortunes*.

<sup>22</sup> Jackson, *Crabgrass Frontier*.

residential segregation.<sup>23</sup> This project has been intrinsically tied to the geographic arrangement of shifting energy and land use policy over the past century, which has heaped the consequences of environmental degradation on segregated communities of color, increasing risks of asthma, cancer, and other disease. As racial residential segregation is entrenched via the two-tiered housing system and dual mortgage market, it has likewise worked alongside racist land use and siting policy to produce a racialized, two-tiered relationship between communities and the environment, with communities of color disproportionately exposed to pollution and toxic contamination.

Organizing this differential exposure to harmful environmental hazards has been a state project, at times passive and at times proactive. Cooperation with governments is necessary for the construction of polluting infrastructure and industrial facilities, which often create environmental hazards for surrounding communities—keeping down property values (and with them, political power) and harming health. This racialized production of environmental conditions is a direct consequence of both passive neglect and proactive investment by federal, state, and local governments in accordance with public-private partnerships. This has created the perverse landscape of racialized environmental inequality today, where communities that benefit the least from polluting activities suffer the most from them. From the community level, racialized communities often lack the political and economic might to prevent disproportionate location of toxic facilities in their neighborhoods, whereas white communities are usually able to block similar facilities. As a recent study in the *Proceedings of the National Academic of Science* reported, “On average, non-Hispanic whites experience a ‘pollution advantage’: They experience 17% less air pollution exposure than is caused by their consumption. Blacks and Hispanics on average bear a ‘pollution burden’ of 56% and 63% excess exposure, respectively, relative to the exposure caused by their consumption.”<sup>24</sup>

Mindy Fullilove, a scholar of urban renewal projects and community development, has argued that lower income communities, and communities of color, are most exposed to environmental harms due to “serial forced displacement” by public-

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<sup>23</sup> Fields and Raymond, “Racialized Geographies of Housing Financialization.”

<sup>24</sup> Tessum et al., “Inequity in Consumption of Goods and Services Adds to Racial–Ethnic Disparities in Air Pollution Exposure.”



private housing and commercial development projects. She defines serial forced displacement as “the repetitive, coercive upheaval of [low-income, non-white] groups” through federal, state, and local government policies.<sup>25</sup> In the wake of climate-linked disasters like Hurricane Katrina and Hurricane Sandy, we have seen how these inequalities expose those communities to disproportionate harm.<sup>26</sup> As the sociologist Eric Klinenberg showed in *Heat Wave: A Social Autopsy of Disaster in Chicago*, linked public-private divestment can strip communities of both the physical resources, and social infrastructure, needed to cope with environmental extremes.<sup>27</sup> Likewise, in New York City after Sandy, the neighborhoods that suffered the most, and for the longest duration after the storm, were those that had been subject to years of disinvestment and neglect.<sup>28</sup> In public housing, for instance, one study found that 45% of the units near the flood zones had visible mold after the storm, but 34% of units already had visible mold *before* the storm.<sup>29</sup> Public and private investment—and disinvestment—are fundamental causes of environmental injustice.

The growth of many urban centers in the US are often directly linked to the exploitation of Indigenous people and their own lands.<sup>30</sup> For example, Needham and Powell, show that the growth of Phoenix was made possible through the extraction and burning of coal on Navajo land. The expansion of urban Phoenix occurred in tandem with the pollution and destruction of Navajo lands and threats to Diné sovereignty.<sup>31</sup> On one hand, there is the need for environmental justice within these Indigenous lands to be addressed.<sup>32</sup> But also, we need to understand that the same forces that created these exploitations are the ones that are highlighted in the climate justice movement. Therefore, there are opportunities for solidarity that extend far beyond the notions of an urban center and the climate justice movement is and should continue to catalyze these networks of solidarity. It’s not just about climate justice and environmental justice but

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<sup>25</sup> Fullilove and Wallace, “Serial Forced Displacement in American Cities, 1916–2010.”

<sup>26</sup> Elliott and Ionescu, “POSTWAR IMMIGRATION TO THE DEEP SOUTH TRIAD.”

<sup>27</sup> Klinenberg, *Heat Wave*.

<sup>28</sup> “A Tale of Two Sandys.”

<sup>29</sup> Liboiron, “New York’s Two Sandys.”

<sup>30</sup> Needham, *Power Lines*.

<sup>31</sup> Powell, *Landscapes of Power*.

<sup>32</sup> Needham, *Power Lines*.; Powell, *Landscapes of Power*.

the survival of Indigenous people relies on the undoing of colonial legacies and racial capitalism today.<sup>33</sup>

New York City and Buffalo are well documented sites where environmental racism, serial forced displacement, and many other such interconnected exploitations have historically occurred. New York's mainstream narrative suggests that the city emerged anew after a crisis of disorder in the 1970s and is now among the touristic, cultural and consumption capitals of the world.<sup>34</sup> But scholars and activists tell a different story—one where the neoliberal turn since the 1970's has created widespread inequality and poverty through increased housing prices and cost of living.<sup>35</sup> And the city's infamous greening has had uneven benefits as well. In *Noxious New York, The Racial Politics of Urban Health and Environmental Justice*, the environmental justice scholar Julie Sze traces the disproportionate burden of urban environmental problems on four New York City neighborhoods, and shows how communities responded to specific toxic infrastructures and economic disinvestment by organizing into environmental justice movements that often had to develop their own citizen science to prove that their communities were being poisoned.<sup>36</sup> And Sze traces this dynamic of unequal, racialized exposure to environmental harms, facilitated by city planning, back to the nineteenth century sanitation movement. Environmental Justice community organizations have been the leading protagonists in measuring negative environmental impacts, and developing a new paradigm of environmental justice policy through organized neighborhood residents doing the research on local pollution that the public sector then refused to do—what is often referred to as citizen science.<sup>37</sup>

In Buffalo, a close look into how social relations have changed over time, especially in regards to racial differences in the labor market, can shed light on the long history of environmental racism and classism.<sup>38</sup> After the construction of the Erie Canal in 1825, dock work in and around the then economically vibrant canal was restricted to the non-black populations and was monopolized by the Irish. African Americans mostly

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<sup>33</sup> Estes, *Our History Is the Future*.

<sup>34</sup> Brash, *Bloomberg's New York: Class and Governance in the Luxury City*.

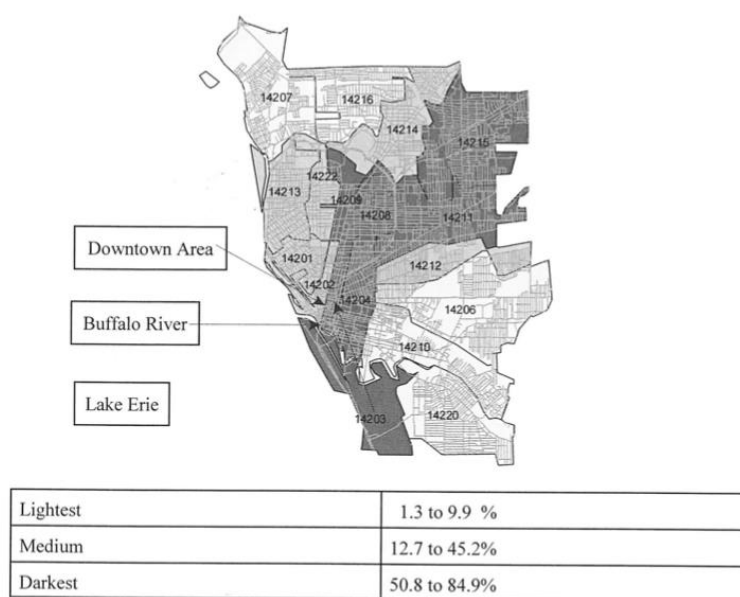
<sup>35</sup> Brash.

<sup>36</sup> Sze, *Noxious New York: The Racial Politics of Urban Health and Environmental Justice*, 2007.

<sup>37</sup> Sze.

<sup>38</sup> Krieg, "Race and Environmental Justice in Buffalo, NY."

were able to access service jobs. These dynamics quickly changed because the Erie Canal became outdated within 25 years of its construction, replaced by rail travel. Rail travel was seen as more cost effective and efficient, but this shift bypassed Buffalo as a commercial center. In reaction, Buffalo transformed to an industrial/manufacturing hub (this was also in the wake of World War 1's material and labor demands). In the new Buffalo economy, Black people were able to access industrial work that they had previously been excluded from. In reaction, however, residential segregation in Buffalo intensified. The same patterns that we have seen with housing in New York City occurred in Buffalo, a combination of racist lending patterns, redlining, transportation planning, and half a century of disinvestment, and white populations moving to the suburbs reified residential segregation and worked to keep black populations in subpar housing.<sup>39</sup> These trends are also reflected in the demographic patterns of Buffalo today and have deeply affected the local energy economy and the wellbeing of the people that rely on it.<sup>40</sup> Groups like PUSH Buffalo are working towards a more energy equitable Buffalo that works to undo some of these historical harms.



**Figure 1.** Street map of the 17 ZIP codes that encompass Buffalo, NY, shaded by African American population (2000).

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<sup>39</sup> Krieg.

<sup>40</sup> “West Side Community Energy Roadmap.”

<sup>41</sup> Krieg, “Race and Environmental Justice in Buffalo, NY.”

## 2.3 Rise of the Environmental Justice (EJ) movement

Given the intersections of environmental, economic, and racial inequalities, it should come as little surprise that the United States' most intellectually sophisticated environmental movement should have emerged from communities of color and the civil rights movement. During the 1970s, the Environmental Justice (EJ) movement emerged in large part in opposition to mainstream environmentalism of the time. EJ activists critiqued their white environmentalist counterparts for focusing too much on nature conservation and ignoring the racialized impact of pollution. Environmentalism was seen as an upper- or middle-class white movement to save the pristine wildernesses such as forests, rivers, non-humans, etc.<sup>42</sup> In addition to failing to address the pollution and environmental hazards facing communities, these wilderness areas that were the focus of traditional environmentalists were largely inaccessible to communities of color and poor communities.<sup>43</sup>

Environmental justice brings the narratives of racism and environment together by studying the geographic distribution of people by their race and likelihood of facing environmental hazards. Environmental justice researchers like Bullard and Chavis discuss “environmental racism” showing that both the factories and hazardous waste created by the United States' largest polluters are overwhelmingly located in poor neighborhoods of color.<sup>44</sup> Environmental racism theorizes that poor and vulnerable populations are more likely to live in places with environmental problems and be at risk for environmental threats. But climate change is further systematically established than the proximity between low-income people and the largest polluters, given marginalized communities typically live on marginalized lands that are ecologically more susceptible to environmental degradation.

Environmental justice communities were often forced to partake in a series of tradeoffs with local governments, where they might accept a toxic dump in their

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<sup>42</sup> Shrader-Frechette, *Environmental Justice: Creating Equality, Reclaiming Democracy*.

<sup>43</sup> Taylor, *The Environment and the People in American Cities, 1600-1900s*.

<sup>44</sup> Chavis and Lee, “Toxic Wastes and Race In The United States.”; Bullard, *Dumping in Dixie*.

neighborhood for a reduced local tax base. In many cases, hazardous waste and polluting facilities were located in environmental justice communities without any input from the community. Communities of color and low-income communities were seen as a “path of least resistance” for corporate polluters and developers. Environmental justice advocacy and resistance to polluting industries has a long history in New York State. Among these legacy EJ organizations are UPROSE, WE-ACT and the New York City Environmental Justice Alliance (NYC-EJA). UPROSE was founded in 1966 and is one of the oldest Latino environmental groups in the country.<sup>45</sup> WE-ACT was founded in 1998 and in 1991, the New York City-Environmental Justice Alliance (NYC-EJA) was formed. Later that year, a multinational group, including WE ACT, attended The First People of Color Environmental Leadership Summit in Washington D.C. At this event, The Principles of Environmental Justice were debated and solidified. These principles are still used to guide the Environmental Justice Movement today.<sup>46</sup>

In the early 2000s, the groundwork for merging of the environmental justice movements and climate justice movements were being laid.<sup>47</sup> In 2001, the Environmental Justice and Climate Change Initiative was founded at the first Climate Justice Summit, which took place at the Hague during the COP6 meeting of the UNFCCC.<sup>48</sup> In 2002, after a delegation of US activists attended the World Social Forum in Porto Alegre, the Grassroots Global Justice Alliance was formed. Hurricane Katrina in 2005 is marked as a moment where the movement for environmental justice overlapped with one for climate justice.<sup>49</sup> In line with the tenets of the environmental justice movement, climate justice movements merge racial and economic justice with climate science, showing that the unequal burdens of climate change would fall on people of color and poor people.<sup>50</sup> After Katrina, these movements recognized that environment, poverty, health issues, substandard housing are not merely symptoms of social injustice but that they are all one interconnected problem. This understanding, for these

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<sup>45</sup> “UPROSE.”

<sup>46</sup> “WE ACT for Environmental Justice.”

<sup>47</sup> Schlosberg and Collins, “From Environmental to Climate Justice: Climate Change and the Discourse of Environmental Justice.”

<sup>48</sup> Schlosberg and Collins.

<sup>49</sup> Schlosberg and Collins.

<sup>50</sup> Caucus, “African Americans and Climate Change: An Unequal Burden.”

movements, builds a much broader and more diverse coalition of what climate justice entails.<sup>51</sup> Between 2005 and 2009, many coalition building meetings were held by activists in the US and abroad. These meetings built up to a national Mobilization for Climate Justice in 2009 and to COP15 in Copenhagen.<sup>52</sup> In 2012, the Climate Justice Alliance was formed consisting of “frontline communities confronting the direct consequences of extractive, polluting industries.”<sup>53</sup> In 2014, many of these groups came together to organize the People’s Climate March, a mainstream event coalescing these groups together to this day.<sup>54</sup>

## 2.4 Toward a just transition for workers

While EJ movements were mobilizing around unequal racial exposure to environmental harms, elements of the US labor movement also began organizing to ensure that greening the economy also benefited workers. The framework for what we now call “just transition” emerged in the 1970s from labor leader Tony Mazzocchi and others as a way to reconcile environmental and social concerns and subvert “job blackmail,” where workers are forced to work in unsafe and toxic environments or risk losing their jobs.<sup>55</sup> Mazzocchi argued that there should be support for transitioning workers who were displaced due to environmental policies and for workers exposed to hazardous and toxic materials.<sup>56</sup> With this view of labor environmentalism, early just transition efforts focused on the goal of supporting both jobs/workers and the environment. From early on, however, the just transition strategy involved collaboration with environmental justice and community organizations.<sup>57</sup>

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<sup>51</sup> Schlosberg, “Theorising Environmental Justice.”

<sup>52</sup> “Home Page - Climate Justice Alliance.”

<sup>53</sup> “Home Page - Climate Justice Alliance.”

<sup>54</sup> Cohen, Daniel Aldana. “Petro Gotham, People’s Gotham.” In *Nonstop Metropolis: A New York City Atlas*, edited by Rebecca Solnit and Joshua Jelly-Shapiro, 47–54. Berkeley: University of California Press, 2016.

<sup>55</sup> Leopold, *The Man Who Hated Work and Loved Labor*.

<sup>56</sup> Labor Network for Sustainability and Strategic practice: Grassroots Policy Project, “Just Transition’ - Just What Is It?”

<sup>57</sup> Labor Network for Sustainability and Strategic practice: Grassroots Policy Project.

Recognizing that an energy transition impacts more than energy workers, discussions of just transition further highlighted the environmental justice dimension, integrating ideals of justice into energy transitions.<sup>58</sup> Integrating climate, environmental, and energy justice concerns broadens the just transition discussion from focusing only on the immediate needs of displaced workers and communities, to broader questions of who benefits from the energy transition, how do they benefit, and why do they benefit?<sup>59</sup> In understanding what makes transition, “just,” scholars note that past energy transitions have resulted in ‘winners and losers.’<sup>60</sup> This research highlights that moving from fossil fuels to renewable sources in and of itself is not what makes the energy transition just. Rather, there must be a deliberate understanding of how transition is just and what makes transition just.

Integral to just transition is creating a robust carbon-free economy. New York is a leader in creating jobs in renewable energy sectors that are also good jobs. In a first of its kind policy, the state recently passed labor protections for renewable energy projects in the most recent budget. The provisions not only require construction on renewable energy projects bigger than 5 MW to have prevailing wage and project labor agreements, but also require labor peace agreements for operations and maintenance work on systems 5MW and larger. In labor peace agreements, employers agree to not oppose unionization and workers agree not to strike or stop work.<sup>61</sup>

This builds on the last few years of advocacy in the labor and climate arena. The Labor Leading on Climate initiative of Cornell University’s Worker Institute released a report in 2017 laying out a policy platform that was developed by and for the labor movement.<sup>62</sup> That report led to the development of Climate Jobs New York and in 2017, in partnership with Climate Jobs NY and Cornell University’s Worker Institute, Governor Cuomo announced a \$1.5 billion investment to create 40,000 climate jobs

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<sup>58</sup>Williams and Doyon, “Justice in Energy Transitions.”

<sup>59</sup> Newell and Mulvaney, “The Political Economy of the ‘Just Transition.’”

<sup>60</sup> Eames and Hunt, “Energy Justice in Sustainability Transitions Research.”

<sup>61</sup> Labor peace agreements are negotiated specific to jurisdiction and industry, but for example, see The City of New York, Office of the Mayor, “Executive Order No. 19: Labor Peace for Retail Establishments at City Development Projects.”

<sup>62</sup> “Reversing Inequality, Combatting Climate Change | The ILR School.”

through investments in energy efficiency and renewable energy projects.<sup>63</sup> In 2019, Governor Cuomo announced a partnership with the Danish company Ørsted for a massive offshore wind project, which then announced it had entered into a project labor agreement with the North American Building Trades Unions to build the offshore wind turbines.<sup>64</sup>

Overall, what the preceding analysis demonstrates is that environmental policymaking has always been entwined with the broader dynamics of American racial capitalism, including a long history of racialized segregation maintained by public-private partnerships in real estate, inadequate environmental regulation, and the declining power of labor unions. To genuinely achieve climate justice in New York State through the CLCPA and any additional legislation, with equitable outcomes for racialized communities and workers, will require both a broad framework of equitable green development with high road standards, and a sophisticated set of policy tools to achieve the NYJ40 objectives.

Having briefly surveyed the roots of racialized environmental inequalities in the United States and New York, their deep connections to public policy and public-private investment landscapes, and the rise of equity-oriented environmental justice and just transition labor movements, we now turn to the rise of a policy idea that played a key role in inspiring the CLCPA: targeted green investments in disadvantaged communities, an idea that first became policy in California.

## 3. The California Model

### 3.1 Why Mapping Matters

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<sup>63</sup> “Governor Andrew M. Cuomo Signs Executive Order and Commits New York to Uphold the Standards Set Forth in the Paris Accord | Governor Andrew M. Cuomo.”

<sup>64</sup> “North America’s Building Trades Unions (NABTU) and Ørsted Sign Landmark MOU for U.S. Offshore Wind Workforce Transition.”



Communities of color and low-income communities bear a disproportionate pollution burden in several ways. Starting in the late 1970's, Dr. Robert Bullard mapped how toxic waste is disproportionately placed in communities of color and showed that, in Houston, while Black people comprised only a quarter of the population, 82 percent of all garbage was dumped in Black neighborhoods.<sup>65</sup> A decade later, *Toxic Waste and Race* expanded Bullard's work to map on a national scale how hazardous waste was disproportionately located in communities of color.<sup>66</sup> In addition to hazardous waste exposure, communities of color and low-income communities breathe more polluted air and have less access to clean water.

Environmental justice advocates have long raised the alarm that communities of color and low-income communities are suffering from cumulative impacts, that these communities suffer from several toxic exposures but that environmental decision-making fails to address the cumulative impact burden. In 2020, New Jersey made history by passing the country's first law that requires permits to be denied based on cumulative impacts.<sup>67</sup> While several states, including California, have laws that require cumulative impact assessment, New Jersey's law is the first to require, rather than allow, permits to be denied if the facility in question would create a disproportionate cumulative pollution burden.<sup>68</sup>

To understand the relationship between where pollution is placed and where communities of color and low-income communities live, mapping of polluting facilities, traffic levels, socio-economic indicators, and other factors help show the intersection of race, class, and pollution. This data can help decisionmakers understand which communities bear the greatest environmental and climate burdens and, therefore, where investment and efforts should be targeted.

California is the first state to have developed environmental justice mapping that quantified place-based intersections of environmental harm and socio-economic vulnerability to inform policies that direct disproportionate investment to

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<sup>65</sup> Lerner, "The Coronavirus Pandemic and Police Violence Have Reignited the Fight Against Toxic Racism."

<sup>66</sup> Bullard et al., "Toxic Wastes and Race at Twenty, 1987-2007: A Report Prepared for the United Church of Christ Justice and Witness Ministries."

<sup>67</sup> "How a Long-Stalled 'Holy Grail' Environmental Justice Bill Found Its Moment in New Jersey."

<sup>68</sup> "New Jersey S232 | 2020-2021 | Regular Session."

disadvantaged communities. This process arose out of efforts in the early 2000s, by environmental justice advocates and public health scholars to systematically measure cumulative disadvantage at the neighborhood level.

The first version of CalEnviroScreen was released in 2013 and grew out of research done by Sadd, et. al. who had proposed an Environmental Justice Screening Method to show patterns of, “cumulative impacts from environmental and social stressors across neighborhoods within regions.”<sup>69</sup> The California Air Resources Board solicited and funded Sadd et. al’s research with feedback provided from environmental health advocates, environmental justice advocates, agency personal, and external scientific peer reviewers. EJSM mapped 23 indicators in three categories- hazard proximity and land use, air pollution exposure and health risk, and social and health vulnerability.

Building on Sadd et al’s work, CalEPA’s Office of Environmental Health Hazard Assessment developed CalEnviroScreen, which was initially based on the combination of 18 indicators, which were used to calculate a compound score from 0-100, with the most burdened and vulnerable communities scoring higher.<sup>70</sup>

Once the indicator data is collected, percentiles are used to assign scores for each indicator in any geographic area. The percentile calculation is a relative score for each of the indicators. The indicators are then averaged across Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors. The CalEnviroScreen score is calculated by multiplying average Exposures and Environmental Effects by the average of Sensitive Populations and Socioeconomic factors. The image below shows the most recent CalEnviroScreen scoring across the state.

In other words, the CalEnviroScreen method creates a single, unilinear scale of environmental harm on which any neighborhood can be placed. Today, CalEnviroScreen takes the census tract as its geographic unit of analysis.

Data for the indicators is taken from state-specific and federal sources; communities also provide feedback. CalEnviroScreen scores are presently used to

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<sup>69</sup> Sadd et al., “Playing It Safe.”

<sup>70</sup> “California Communities Environmental Health Screening Tool (CalEnviroScreen 1.0).”

identify disadvantaged communities for targeted investment, as required by SB 535.<sup>71</sup> SB 535, passed in 2017, requires a certain percentage of cap-and-trade revenue—now increased to 35 percent—to be dedicated to investments that benefit “disadvantaged communities” as defined by CalEnviroScreen; of that 35%, 25% goes to the most disadvantaged communities, 5% goes to communities within a half-mile of the most disadvantaged communities, and another 5% goes to low-income communities across the state. Through this legislation, revenue is spent on projects like affordable housing, public transit, home weatherization, urban greening, and more in communities identified by CalEnviroScreen. As of 2021, over \$4 billion have benefited priority populations, as a result of the legislation.<sup>72</sup> The California Air Resource Board estimates that over half of the revenues from cap and trade invested in California has gone to disadvantaged communities, exceeding the minimum 35% specified in current law.<sup>73</sup>

CalEnviroScreen has been updated twice since the initial release and now 20 indicators are mapped in four groupings- Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors.<sup>74</sup> It is important to note that race was dropped as an indicator in version 2.0 due to legal concerns, as Proposition 209 prevents the state from making any race-based decisions. Nonetheless, 89% of the residents of the top 20 polluted census tracts are people of color.<sup>75</sup>

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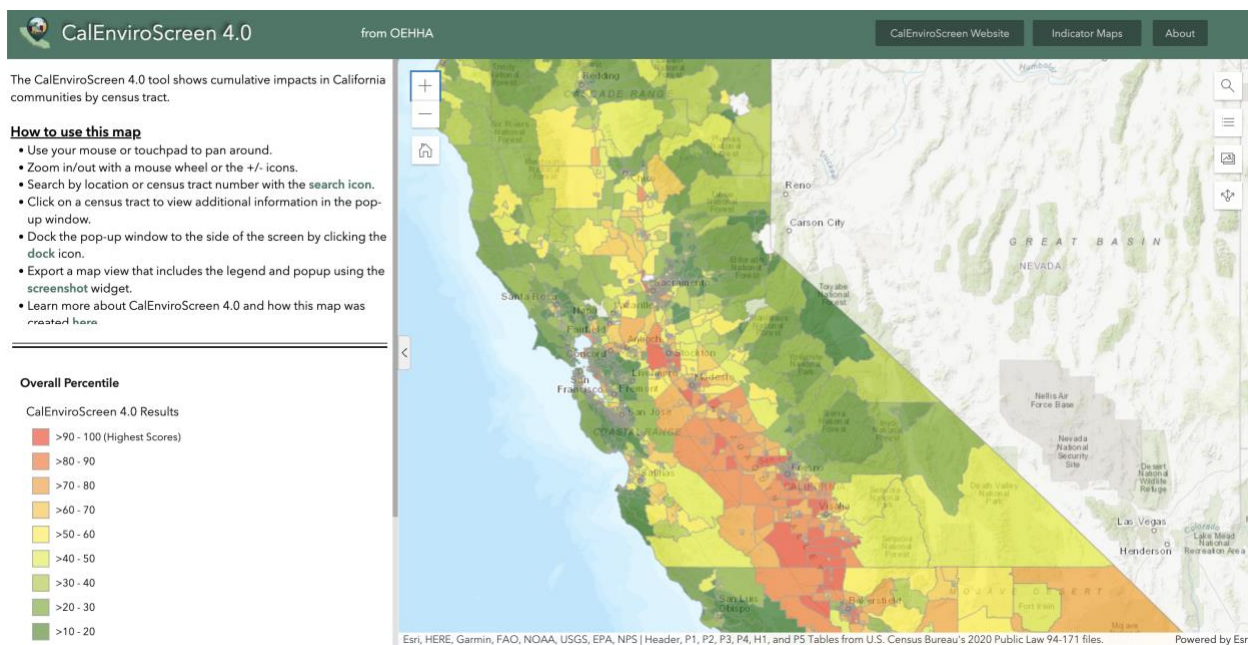
<sup>71</sup> SB 535 requires a certain percentage of cap-and-trade revenue, now increased to 35 percent, to be dedicated to investments that benefit “disadvantaged communities” (as defined by CalEnviroScreen). Through this legislation, revenue is being spent on projects like affordable housing, public transit, home weatherization, urban greening, and more in communities identified by CalEnviroScreen.

<sup>72</sup> “Record Year for California Climate Investments: \$3.1 Billion Invested in 2020 across California | California Air Resources Board.”

<sup>73</sup> “Record Year for California Climate Investments: \$3.1 Billion Invested in 2020 across California | California Air Resources Board.”

<sup>74</sup> The Exposure indicators within CalEnviroScreen are: ozone, PM 2.5, diesel particulate matter, drinking water contaminants, pesticide exposure, toxic release from facilities, traffic density. The Environmental Effect indicators are: toxic cleanup sites, groundwater threats from leaking underground sites and cleanups, hazardous waste facilities and generators, impaired water bodies, solid waste sites and facilities. The Sensitive Population indicators are: asthma emergency room visits, cardiovascular disease, low birth-weight infants. Socioeconomic Factor indicators are: educational attainment, housing burdened low income households, linguistic isolation, poverty, unemployment.

<sup>75</sup> “CalEnviroScreen 4.0 Results.”



### 3.2 Direct investment in disadvantaged communities

Direct investment of low-carbon and other carbon neutral measures in communities identified as disadvantaged can begin to address the historic pollution burden placed upon low-income communities and communities of color.

California measures the level of investment in disadvantaged communities based on dollars spent. However there is controversy over the *location* of that spending. Direct investment, where resources are spent directly *in* a community, is widely seen within the environmental justice community as a more reliable way of ensuring that targeted investment reaches the communities most in need. Investment “for the benefit of,” disadvantaged communities can reinforce existing inequities by funding projects that may benefit communities abstractly—eg, in the form of state-wide transit expansion that includes some stops in disadvantaged communities. Many environmental justice advocates argue that these “for the benefit of” targeted investments do not yield the same level of localized pollution reduction, economic uplift, and capacity building as resources investment directly *in* communities.

One effort to maximize the local benefit of direct investment has been the Transformative Climate Communities (TCC) program, which funds holistic, climate-

friendly economic development initiatives in disadvantaged communities, with important provisions for community leadership.<sup>76</sup> By law, these projects must substantially reduce greenhouse gas emissions as well as local air pollution. TCC funded projects must also leverage additional funding sources. To date, the program has funded several major projects, including a \$33 million TCC grant to the community of Watts in Los Angeles, which resulted in an additional \$168.9 million and funded an array of projects, including new affordable housing, battery-electric buses, planting of new trees, and expanding bike and pedestrian pathways.<sup>77</sup> In total, the projects reduced over 69,000 tons of CO<sub>2</sub>e, created over 300 construction and permanent jobs, and over 500 new training opportunities.<sup>78</sup> In addition to climate action, the TCC program's emphasis on centering local partnerships and community-engaged development meant that TCC partners had the trust and local knowledge necessary to identify needs within their communities and respond in a timely manner during the pandemic.<sup>79</sup>

### 3.3 Lessons from the California Experience

While CalEnviroScreen and California's investment in disadvantaged communities are largely seen as the model for targeted investment, several tensions arose in the process of developing and deploying CalEnviroScreen, as well as state policies around targeted investment. Through interviews with key stakeholders integral to both developing CalEnviroScreen and shaping the targeted investment requirements, three main areas of tension arose: 1) how to define "disadvantaged community," 2) whether targeted investment was really being spent in a community, and 3) whether regional differences were adequately represented.

Once CalEnviroScreen mapped disparities, it was unclear what cutoff score would be used to define a "disadvantaged community." The designation of disadvantaged unlocks significant resources so the cutoff point for CalEnviroScreen was heavily

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<sup>76</sup> California, "TCC Vision - Strategic Growth Council."

<sup>77</sup> Zlatar, "Transformative Climate Communities."

<sup>78</sup> Zlatar.

<sup>79</sup> "Transformative Climate Communities Build Resilience During Pandemic."

disputed. Ultimately, the state decided that the 25% of census tracts that scored worst on CalEnviroScreen would count as disadvantaged. As the initial legislation called for at least 25% of investments from cap-and-trade revenues would go to disadvantaged communities, this initially allowed for a *proportionate* allocation of investment. (The floor has since been raised to 35%, as described above.) With a unilinear scale used to allocate investments, any cutoff number will have high stakes for particular communities, as we show below in the New York case.

The designation cutoff also sparked regional conflict. The mapping was done for the state as a whole. The Bay Area is wealthier and has better overall environmental metrics than Central or Southern California. As such, with state-wide mapping, most communities in the Bay Area do not score badly enough to be eligible for direct investment. Many Bay Area politicians and groups argue that CalEnviroScreen penalizes them. A number of environmental justice advocates in that region continue to defend the mapping tool, as they were involved in its development over the course of years, and because some communities in the Bay Area still qualify as disadvantaged. Nonetheless, this conflict raises the question of whether measures of disadvantage should be nested within regions, rather than done strictly statewide. Invariably, any chosen method of targeting will involve tradeoffs and conflicts.

Finally, the accounting behind the spatial designation of targeted investment is important and will be contested. In 2017, California spent \$1.2 billion in cumulative implemented funds. Of this amount, only 34 percent, \$419 million, was spent directly *in* disadvantaged communities while \$614 million was spent in *benefit of* disadvantaged communities.<sup>80</sup> The remaining \$167 million of the cumulative funds was spent on high speed rail,<sup>81</sup> which counts as targeted investment based on the idea that a high-speed rail line would benefit disadvantaged communities. High-speed rail would be an overall benefit to the state and reduce emissions in the state, but whether it would deliver the type of benefits a targeted approach requires is unclear. This type of accounting fails to deliver the investment needed and, as detailed in Section 4, what counts as a benefit should be clearly established through community-based participation.

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<sup>80</sup> “2017 California Climate Investments Annual Report.”

<sup>81</sup> “2017 California Climate Investments Annual Report.”

### 3.5 Limitations of EPA’s EJSCREEN

In addition to state screening and mapping tools, the Environmental Protection Agency has its own mapping tool, EJSCREEN. This tool offers a rudimentary look at some socio-economic indicators and pollution to give a very basic and rough estimate of the intersection of pollution burden and socio-economic indicators. However, the tool is difficult to use and does not allow multiple data sets to be mapped together. This limitation does not show or represent the true cumulative impact of pollution burden on environmental justice communities. EJSCREEN is also limited by data sources, as it only uses federally consistent datasets, some that have not been updated since 2014.<sup>82</sup>

## 4. Principles for a just climate development agenda in New York State

### 4.1 Green high-road economic development

For just climate and economic development, *how* emissions are reduced is as important as the target emissions reduction level. The solutions to the climate crisis cannot contribute to the inequality crisis. Creating renewable energy jobs that pay poorly and do not provide benefits may reduce emissions but it builds a low-carbon future on the backs of workers and continues the exploitative practices of the extractive economy. Leaving public housing developments and low-income developments out of retrofit and residential solar buildout programs makes low-carbon practices a benefit only the elites can access. And, funneling profit to firms and private entities through egregious tax incentives starves communities of much needed revenue. These “low-road” practices are

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<sup>82</sup> US EPA, “Overview of Environmental Indicators in EJSCREEN.”

not hypothetical scare tactics—they are the unfortunate reality in many parts of New York state. But, looking forward, climate policy and investment can actualize just economic development by adopting “high-road,” practices that enrich workers, communities, and the state.

High-road economic development focuses on job quality, as well as quantity.<sup>83</sup> Job quality is particularly important for low-carbon sectors as fossil fuel jobs have higher rates of unionization, pay well, and are more likely to provide benefits while jobs in residential solar installation, for example, are notorious for poor wages, no benefits, and little to no union density. There is no reason solar installation jobs should be bad jobs. To create these high-road jobs, the State of New York must ensure both that companies provide these types of jobs, and workers have the skills to take them.<sup>84</sup> The state can support high-road job availability by ensuring proper wage and benefit levels for workers, and it can increase worker training by supporting apprenticeship programs. Protecting the right to organize supports both of these goals as unions will fight for good wages, benefits, training, and career pathways for workers. Taken together, these actions can help create high-road jobs in the growing low-carbon economy.

Moreover, in a moment where low-wage jobs dominate, high-road job creation is fundamental to combatting record levels of economic inequality. Ambitious low-carbon job creation that creates millions of family-sustaining jobs can reverse expanding inequality by putting more money into the pockets of workers, bringing economic stability to millions. High-road job creation is also concerned with *who* has access to good jobs. Communities of color have long borne the brunt of the pollution and toxins of the fossil fuel economy while also being excluded from fossil fuel jobs. High-road principles ensure that people who have been historically excluded from economic opportunity, such as many communities of color across the state, are included in the low-carbon future. Research also finds that across the United States, high-road labor

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<sup>83</sup> Inclusive Economics, “High-Road Workforce Guide for City Climate Action.”; Zabin, “Putting California on the High Road: A Jobs and Climate Action Plan for 2030.”

<sup>84</sup> Zabin, “Putting California on the High Road: A Jobs and Climate Action Plan for 2030.”



premiums in the energy sector would have no negative effect on the speed or scale of clean energy deployment.<sup>85</sup>

High-road practices are needed for maximum emissions reductions and equitable workforce development. These provisions are not just good for workers, they are necessary to maximize emissions reductions. Creating high-road jobs helps create a properly-trained workforce that can ensure the work is done properly. The Green Supers program run by SEIU 32BJ trains building supers in low-carbon practices so that buildings can reduce their electricity footprint. Apprenticeship programs, such as those run by the International Brotherhood of Electrical Workers, ensure workers receive the necessary training and guidance and set them up for a career pathway. These high-road practices develop entire career pathways, rather than one-off jobs. High-road apprenticeship programs, such as those that are run by labor unions, combine paid employment with training and education.

Apprenticeship programs also offer an entry to a union career, where workers can have a career pathway rather than being trained for a specific job. And, expanding access to these programs to marginalized communities can bring workers of color into stable, union jobs and ensure inclusion of historically excluded populations. In addition to apprenticeship programs, developing and implementing other workforce development programs with and in disadvantaged communities is necessary to provide targeted skills, adequate training, and prepare the workforce in these communities. These programs are particularly important given the historical exclusion of workers from disadvantaged communities, often justified through lack of skills or training.

Project Labor Agreements (PLA) can also help facilitate the use of highly skilled labor and smooth project management, as the terms and conditions of large-scale projects are negotiated before construction begins. PLAs also ensure labor-management peace and ensure timely project conclusion. New York state made significant steps to ensuring high-road job creation by requiring a PLA in the solicitation for off-shore wind. Large projects, such as developing off-shore wind, are well suited to PLA requirements

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<sup>85</sup> Mayfield and Jenkins, “Influence of High Road Labor Policies and Practices on Renewable Energy Costs, Decarbonization Pathways, and Labor Outcomes.”

because the size of the project requires a large skilled workforce, as well as complex project management.

High-road practices ensure that communities and the state receive proper revenue and public money does not subsidize private risk. Public and private partnerships, when needed, should be mutually beneficial where public investment is paid back through proper taxation. Communities should receive resources to help strengthen existing infrastructure and services that last beyond business cycles. High-road practices ensure economic development benefits all New Yorkers, not just wealthy business interests.

## 4.2 Maximizing direct community benefits from the CLCPA: Tensions between a dollars-first and a more holistic definition of benefit

Blending an overarching focus on green high road economic development, and the targeted investments required to deliver disproportionate investment to historically disadvantaged communities, should be the goal of the CLCPA regime and the NYJ40 framework. But devils lurk in the details. Targeting funds to some places means not funding others. Defining benefits is intrinsically challenging. Agreeing on the eligible pool of investments, the “denominator” to which the 35%-40% rule applies, remains to be done—but is crucial in light of the size of projected *private* investments. And democratic community control over green economic development is essential. First, we discuss tensions inherent in different approaches to defining benefits, and recommend a focus on dollars invested. In the following section, we turn to tensions inherent in defining disadvantaged communities with one or more scales.

We note that, based on the current, publicly available record of the Climate Justice Working Group, inline with our recommendations, New York State has committed to adopting the dollars-first method of counting benefits directed to disadvantaged communities—ie, measuring whether the state has indeed ensured that

40% or more of eligible investments occur *in* frontline communities.<sup>86</sup> As we also recommend, the State will additionally track other co-benefits; we call this the “both/and” approach. However, the same documentation also suggests a much narrower implicit “denominator” than the very broad definition of public-private investments that we recommend here.

By “denominator,” we are referring to the total pool of public and private investments that must be considered when the state calculates its baseline 40% investment target. In our view, the existing legislation’s broad language suggests that all state investments with climate impacts, and all state-facilitated private investments, belong in the denominator. Recall that, as we note in our Introduction, the CLCPA calls for New York State to:

Invest or direct available and relevant programmatic resources in a manner designed to achieve a goal for disadvantaged communities to receive forty percent of overall benefits *of spending on clean energy and energy efficiency programs, projects or investments in the areas of housing, workforce development, pollution reduction, low income energy assistance, energy, transportation and economic development.*<sup>87</sup> (Our emphasis.)

Moreover, as we discuss below, the state Climate Justice Working Group will recommend that low-income individuals across the state *also* be eligible for *some* of the targeted climate investments. Increasing the pool of people eligible for disproportionate investment would require aiming for a higher floor of targeted investment—at least 50%—and for increasing the absolute volume of investment by growing the denominator.

How “benefit” is defined will shape the kinds of policies that are prioritized, how success will be measured, and ultimately, how life changes in communities across the state. New York’s legislation does not clearly define how benefits should be measured, nor what proportions would be appropriate if multiple benefits are included (eg, dollars spent and health benefits—however difficult the latter would be to define).

In California, the default model for New York, disproportionate investment in disadvantaged communities is measured on the basis of dollars that the state says has been spent in, or to the benefit of, communities that rank among the 25% lowest-scoring

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<sup>86</sup> New York State Department of Environmental Conservation, *December 13, 2021 Climate Justice Working Group Meeting*.

<sup>87</sup> State of New York, “NY State Senate Bill S6599.”

on CalEnviroScreen. According to our interviews with several of California’s environmental justice leaders, this definition has caused three problems.

First, while the California model’s Cap-and-Trade system has delivered over half of eligible investments, in dollar amounts, *in or to the benefit of* disadvantaged communities, there have not been comparable public health benefits. Indeed, research suggests that there has been little or no reduction in local air pollution in disadvantaged communities.<sup>88</sup> In other words, investment benefits alone—in the form of local green investments—are inadequate when local pollution remains unabated.

Second, as discussed above, environmental justice groups have disputed some of the benefits attributed to their communities, especially in the context of transit infrastructure that may technically serve those communities, but provides little material benefit.

Third, the focus on dollars invested may have exacerbated tensions between communities—and their political representatives—that do and do not receive disproportionate funding. As we shall see below, this third problem also arises due to the way that California has defined and mapped disadvantaged communities.

Of these problems, we view the first as most significant, since an essential goal of environmental justice organizing has been to reduce local pollution burdens.

Nevertheless, the groups affiliated with New York Renews have argued throughout the legislative process for defining benefits solely in terms of investment dollars. The reasons for such an approach are straightforward. As summarized above, it is the specifics of public and private investment that have been a fundamental cause of racialized economic inequalities, and unequal exposures to pollution burdens. And in policy terms, it is much easier to quantify and measure public investment dollars than other forms of benefit. Epidemiological models can estimate the health benefit of eliminating a particular source of local pollution; but one cannot measure community health benefits, year on year, with the same precision as one can measure dollars spent. And of course they cannot be measured in the same way!

It is coherent to demand that 40% of the state’s investment in energy efficiency retrofits occur in the boundaries of disadvantaged communities; but how could one

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<sup>88</sup> Cushing et al., “Carbon Trading, Co-Pollutants, and Environmental Equity.”

mandate that 40% of the asthma cases averted occur in such areas? Public green investment dollars are a finite and easily measurable resource. In any given year, there is a zero-sum quality to those dollars; a dollar invested in East Buffalo cannot be invested in the East Hamptons. But it is impossible to wholly attribute non-monetary benefits to state investments, and thus to measure the share of total health gains from state policy that go to any particular location. And it would be impossible to render the various *kinds* of possible benefit commensurate (eg,  $x$  amount of investment +  $y$  amount of health benefit =  $z$  total benefit) with the kind of transparency and consistency typically found in public policies across government that are measured based on spending amounts. Moreover, the problems associated with the distinction between investment benefits *in* communities versus *to the benefit of* communities are liable to be even more difficult to adjudicate with non-economic phenomena.

Finally, New York Renew's leaders view other provisions of the CLCPA, and the key provision of other legislation for which they advocate—in particular, the Climate and Community Investment Act—as adequate measures to reduce air pollution in the State. We concur with this analysis.

The CLCPA clearly defines benefits broadly. Still, in our view, it would be consistent with the legislative text and intent to apply a *both/and* approach to defining community benefits. The NYJ40 could define a minimum share of state investment, measured in dollars; and it could also be interpreted in terms of negotiated thresholds of other kinds of benefit. For instance, the State could be required to provide at least 40% of investments to disadvantaged communities *and* demonstrate improvements in respiratory health, localized pollution levels, employment levels in green jobs sectors, and so on, in disadvantaged communities. Indeed, we would urge the State to use a range of physical and social science methods to assess annual changes in a broad suite of indicators across the state, and to use the results of that research to steer subsequent public investments—consistent with the NYJ40 framework—to ensure that all disadvantaged communities see positive change resulting from direct investments. Indeed, we expect such studies to strengthen the case for maximizing direct investment *in* disadvantaged communities, rather than creative accounting that attributes investment dollars that largely land elsewhere to those communities.

In short, while we recognize the pitfalls—and legal impossibility—of a *dollars-only* definition of benefits in the CLCPA, we worry that efforts to combine measures of public investment dollars and vaguer benefit criteria would undermine the spirit of the CLCPA and pose grave difficulties for transparent and reliable governance. And we hope that within climate policy governance, a renewed focus on public investment—and associated private investment—is best suited to tackling the root causes of economic and environmental injustices.

We are encouraged that state officials have recently committed to the dollars first and both/and approaches that we recommend. In doing so, the State appears to be following the wise guidance of New York Renews, and the original intent of the legislative advocacy undertaken by that coalition since 2016.

### 4.3 Defining and mapping disadvantaged communities

While the generic principle of disproportionate investment in disadvantaged communities is straightforward, it is far from obvious how to translate that idea into concrete requirements. Two issues stand out. Will there be just one, or multiple, metrics of disadvantage? And what percentage of New York State's communities (ie, census tracts) will be considered disadvantaged (based on one or more scales)? The problems with California's model are relevant to New York State.

The most recent public information suggests that New York State officials are carefully considering these dilemmas, and for the most part developing reasonable approaches to confronting them. Here, we briefly summarize the background facts and the resulting dilemmas. Below, in section 4.3.1, we take note of the State's current effort to reconcile these tensions.

The California model created a unilinear scale of disadvantage with CalEnviroScreen, by combining multiple metrics of pollution burden and socio-economic characteristics. In California, as discussed above, legislators' initial choice was to count the 25% worst-performing tracts as disadvantaged. (New legislation has mandated that an additional 10% of Cap-and-Trade revenues go to disadvantaged communities; of that additional 10%, half is for communities within a half mile of

already-targeted communities, preventing a sharp cut-off between tracts within neighborhoods; and the other half should go to low-income communities more broadly.) The combination of these thresholds and the unilinear metric had one great advantage: it produced a single, easy-to-understand map of the state, in which each census tract had a color-coded score. The policy was clear and transparent. And because CalEnviroScreen has been developed in conjunction with Environmental Justice organizations, the policy has a broad base of legitimacy in civil society.

However, one drawback of this model has been regional competition. Simply put, in California, the Los Angeles Metro area and the Central Valley score worse on CalEnviroScreen than the Bay Area. While several Bay Area tracts qualify as disadvantaged, other neighborhoods that are *relatively* burned within the Bay, but less burdened than other parts of the state. And as a result, politicians and some community actors have sought to diminish CalEnviroScreen's role in shaping resource allocation. Arguably, this is not a fundamental policy problem, so long as the data tool accurately maps underlying social and environmental conditions.

Indeed, the reverse problem was identified in California—insufficient funds for the very poorest communities. To rectify this, California set aside some funds for programs like Transformative Climate Communities to the very highest-scoring census tracts. In this way, the state adopted the idea that even with a unilinear score, different programs could be calibrated to meet different kinds of need.

In New York State, there is also the potential for harmful regional competition. As we show below in Maps 1-4, a crude estimate of a New York State environmental justice mapping score, based on local pollution and demographics, would find that virtually all the state's disadvantaged communities are in the broader Buffalo and New York metro regions. This remains the case whether the cut-off for counting as disadvantaged is the 80th, 75th, or 70th percentile (ie, whether communities are in the top 20%, 25%, or 30% most disadvantaged).

This geographic concentration of communities eligible for disproportionate investment could exacerbate political tensions between “upstate” rural communities, and the state's two major metro areas. The problem is compounded by the fact that two of the clearest forms of conjoined environmental and economic disadvantage *are* found upstate: poor access to public transit and, perhaps more significant, severe energy

burdens in the form of very high utility bills. As we show in maps 5-8, there is a massive mismatch in the geographic spread between air pollution burdens (PM 2.5, Ozone), which are concentrated in the New York and Buffalo metro areas, and households' energy burdens, which are very high in areas upstate. Because air pollutants spreads widely in space, some neighborhoods in New York City with moderate or relatively high incomes may qualify for funds that low-income communities upstate may not. That mismatch is driven by the uneven spread of pollution.<sup>89</sup>

We also note that in maps 5-8, we see a contrast between the relatively diffuse pattern of air pollution, which of course travels through space, and the much finer-grained spatial variation found in household-level economic data, which we can estimate at the tract level thanks to our microsimulation techniques.<sup>90</sup> Here, within-city variation in places like New York and Buffalo stands out (for more insights into localized variation, see Appendix 1). Our mapping finds dramatic differences in energy burden between mostly BIPOC city centers/peripheries and mostly white suburbs. These suburban peripheries around NYC and Buffalo have some of the lowest energy burden rates in the state. In short, individuals' experience of environmental harm is often mediated by household economics; those household economics can be spatialized with greater precision than most physical environmental exposures.

To be clear, as we report below, under New York's currently proposed definitions and mapping, there is substantial representation of rural census tracts captured by the State's latest definition of disadvantaged communities.

Stepping back, our broader argument here is that the specific tension between measures of air pollution and energy burdens represents a broader issue with unilinear environmental justice measurement tools: a single scale of disadvantage will always fail to capture important nuances in vulnerability. A single compound tool can tell one story reasonably well; but it is still just one story. A single story may fail to capture the complexity of environmental and climate injustices in a large urban area—never mind a large state, or the entire country. What if the policy framework wants to tell more

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<sup>89</sup> This spatial mismatch *may* be exacerbated by available information on pollution; so-called “forever chemicals” like PFAS have not been systematically measured, but are thought to be widespread in many rural areas.

<sup>90</sup> Graetz, Ummel, and Aldana Cohen, “Small-Area Analyses Using Public American Community Survey Data.”



stories? The most common, immediate response to this dilemma—adding more data points to the EJ screening tool—will not solve this underlying program.

Simply put, adding additional variables to a score—like vulnerability to sea-level rise, projected heat extremes, racial or ethnic classification, energy burden, or flood insurance burden, and so on—none of these will remedy the fact that with a unilinear scale, a single score will divide the state's communities into those that receive funding, and those that do not. To the community that misses out on funding by 1% of the chosen gradient, it won't matter whether the score was developed with 1000 variables or one. On the margin, it is far more valuable to everyone in the state to increase the overall amount of green investment than it is to increase the number of data inputs into any particular system of metrics. Indeed, this is why we propose using public investment in offshore wind turbines to grow the pie of state funds eligible for public investment, including disproportionate investment in frontline communities.

To be sure, increasing the complexity of an environmental justice screening tool by adding variables may increase its legitimacy and geographic reach; but that would also reduce its simplicity, and may dilute its intended target—communities that have suffered the compound, interlocking disadvantages of structural racism, economic disinvestment, and pollution. Similarly, weighting economic factors more than pollution exposures will increase targeted investment based on poverty, and likely generate more investment upstate. But air pollution is deadly; and exposure to it should warrant additional investment. Finally, increasing the number of tracts that are considered eligible for disadvantaged status—say, from 20% to 30% of communities—will marginally increase geographic representation, but at the cost of diluting the disproportionality of investment.

Our view is that New York State should retain the principle of disproportionate investment and its focus on transformative investments in communities devastated by compound exposures to white supremacy, disinvestment, and pollution; but it should consider using more than one measure—more than a single unilinear scale—to target funding across a variety of program streams. There would need to be broad agreement around any alternative to the default, implicit California model of a single unilinear scale steering all public green investment. And it should pursue every possible means to

grow the total sum of resources for investment, through both regulatory and legislative means. An abundance of green investment solves problems; scarcity causes them.

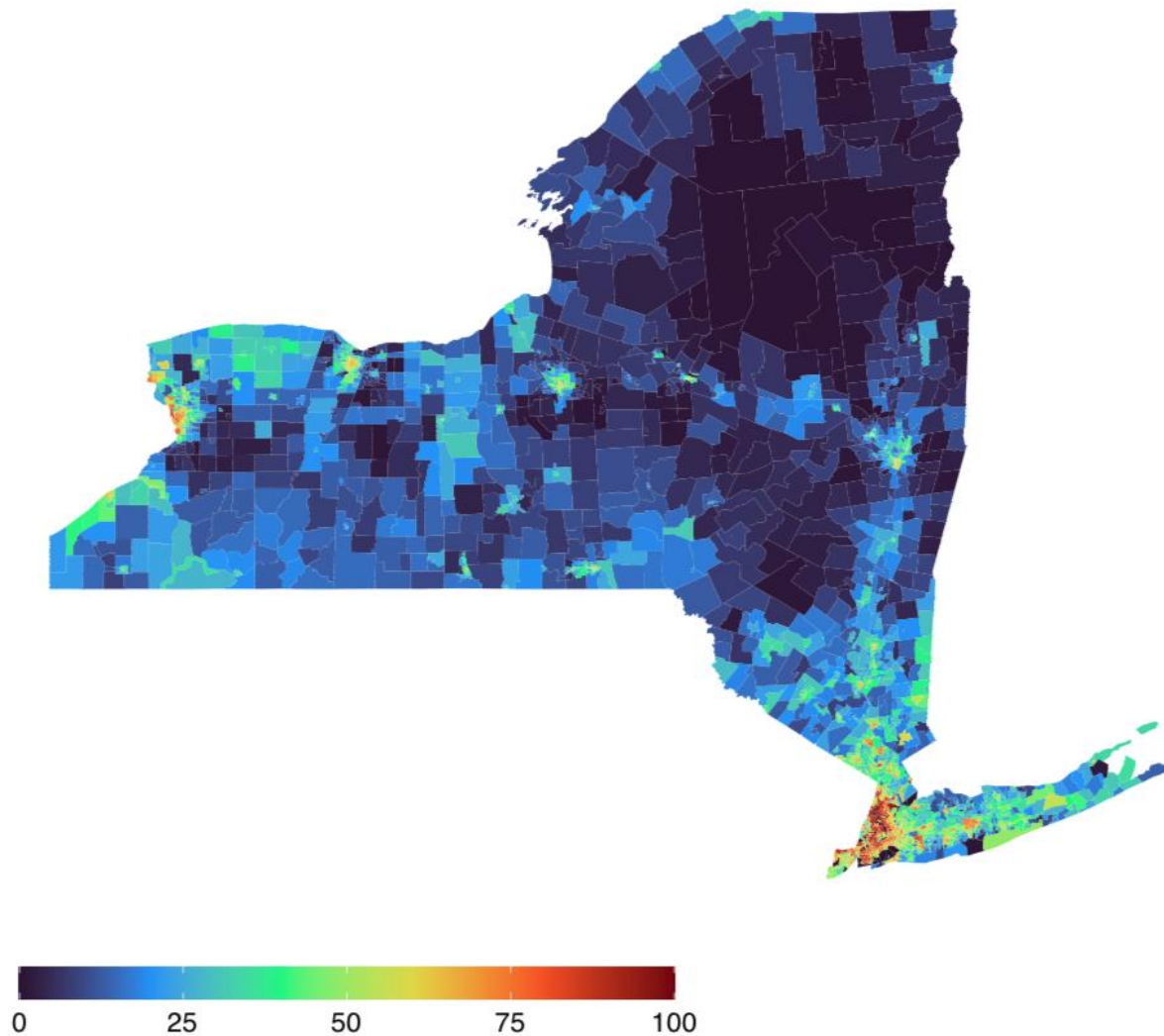
One option for transcending the single, unilinear scale approach would be to use such a unilinear scale only to steer one portion of the state's climate investment—it could be 50%, 66%, 75% of the funds covered by the CLCPA's mandate. And then program-specific EJ mapping could be used for the other streams of CLCPA-governed climate investment, where different geographies mattered more. For instance, funds for low-income housing retrofits could be allocated based on a narrower score of energy burden; funds for coping with flooding could be based on a narrower score of flood insurance burden; and so on. A second option would be to develop multiple holistic scales of disadvantage, with different emphases; an obvious candidate for an additional scale would be one focused on *climate* vulnerability, which would overlap only partially with a more traditional measure of environmental injustice driven by pollution burdens. A third option would be to carve the state in regions, and rank disadvantage within those, instead of using the state as a whole as a single jurisdiction. A fourth option would be to *add* additional criteria for spatial justice on top of the NYJ40—for instance, a requirement that 25% of funds go to the 15% lowest-income rural census tracts that do not otherwise qualify as disadvantaged. In many of these cases, these additional options would not just expand the geographic scope of investment; they could also help specify funding allocations *within* the conventionally measured environmental justice communities.

None of these options is perfect. All involve trade-offs. Overall, each of these options would be more palatable if State agencies targeted—however informally—a much higher level of disproportionate investment. California has regularly delivered over half its investments to disadvantaged communities, according to the State's criteria. Viewing the NYJ40 as a floor, not a ceiling, would be helpful.

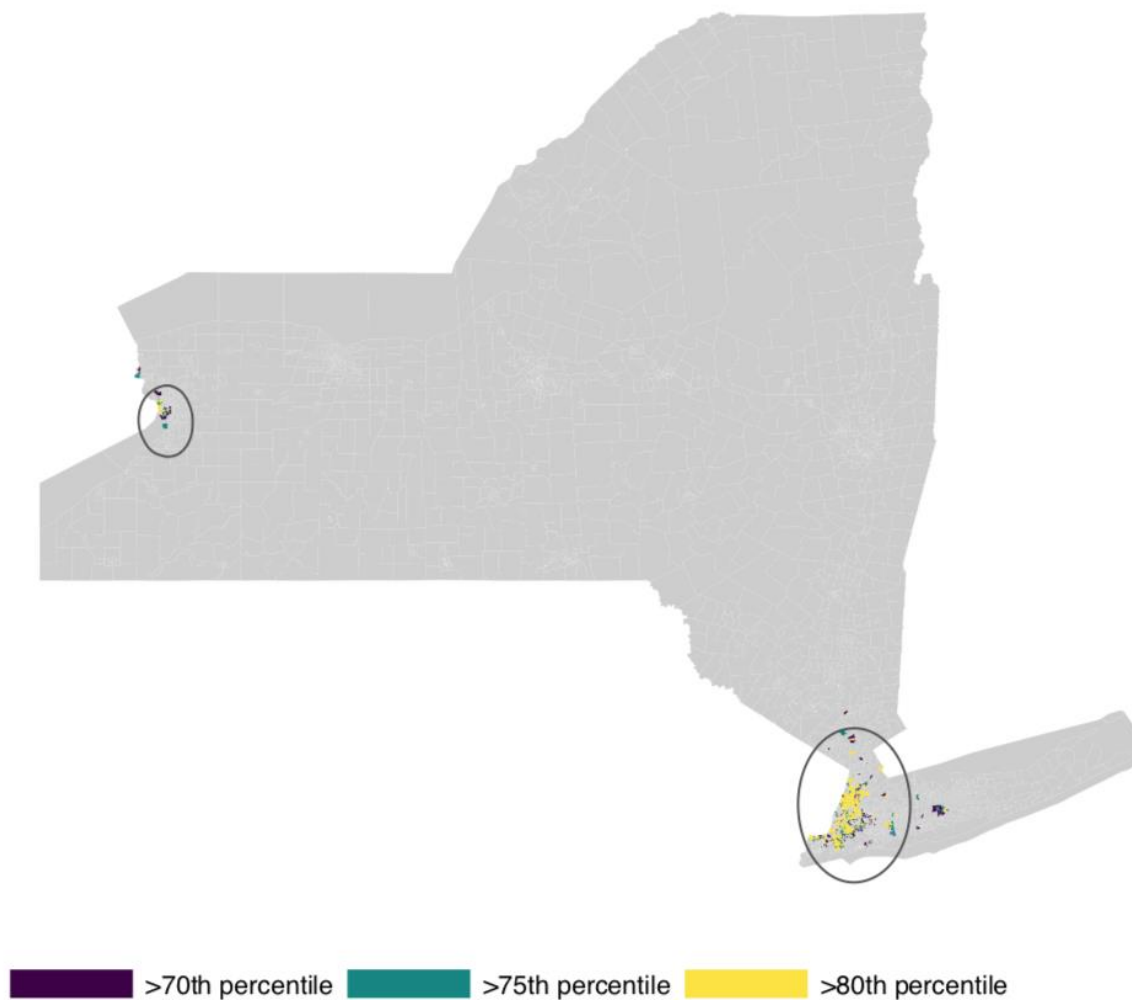
Whatever options are chosen—including adopting the California model despite its flaws—the State and key stakeholders must understand that the CalEnviroScreen model that New York is leaning on (explicitly and implicitly) was developed out of a tradition of public health research with a specific set of concerns around compound exposure to social, economic, and pollution harms. CalEnviroScreen has never foregrounded specific measures of climate vulnerability. And the California model,

which is limited to the Cap-and-Trade budget, is far less ambitious, in terms of how much public investment is subject to its guidelines, than the NYJ40—or the federal J40. The stakes of the trade-offs and conflicts that arise from California’s methods are far smaller than they will be in New York.

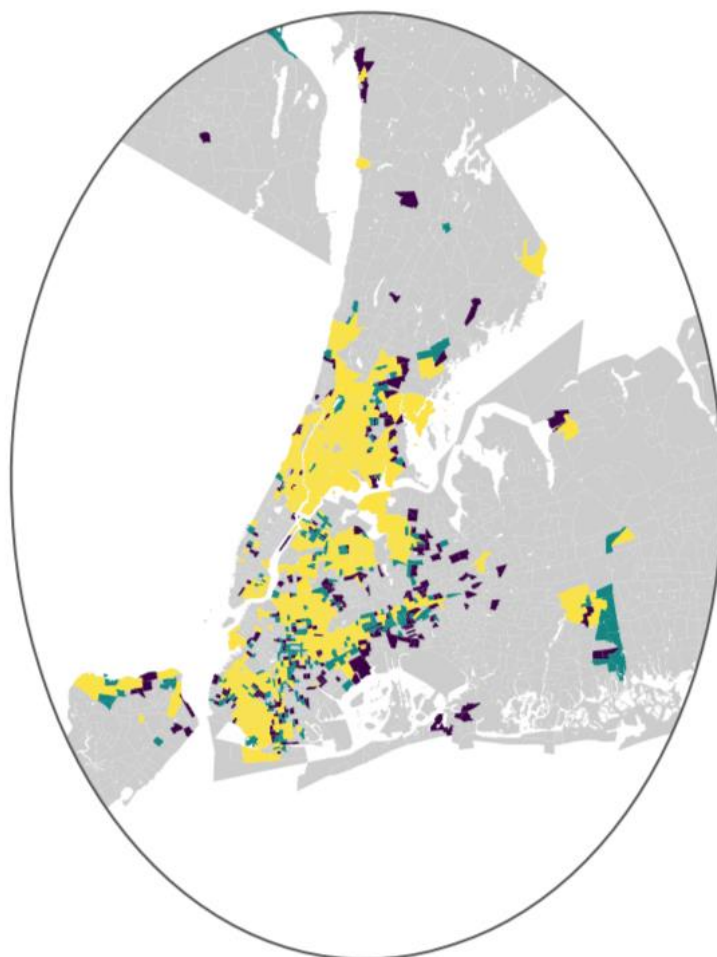
We would strongly urge New York State to go beyond a single unilinear scale in some fashion. What’s more, we have proposed an overarching framework of green high road economic development that would structure the green transition along lines of equity in ways that extend the spirit of the NYJ40 into a broader paradigm of public investment-led development that prioritizes improved conditions for workers and communities across the state. In our view, the broader principle of disproportionate public investment in equity and community empowerment should hold even beyond the mandate to direct 40% of funds and benefits to officially designated disadvantaged communities. The more that New York’s—and the country’s—climate policy is organized to deliver equity in all its program areas, in all its infrastructure planning and financing, then the lower the stakes will be of the specific conflicts that are inevitable with any particular targeted policies.



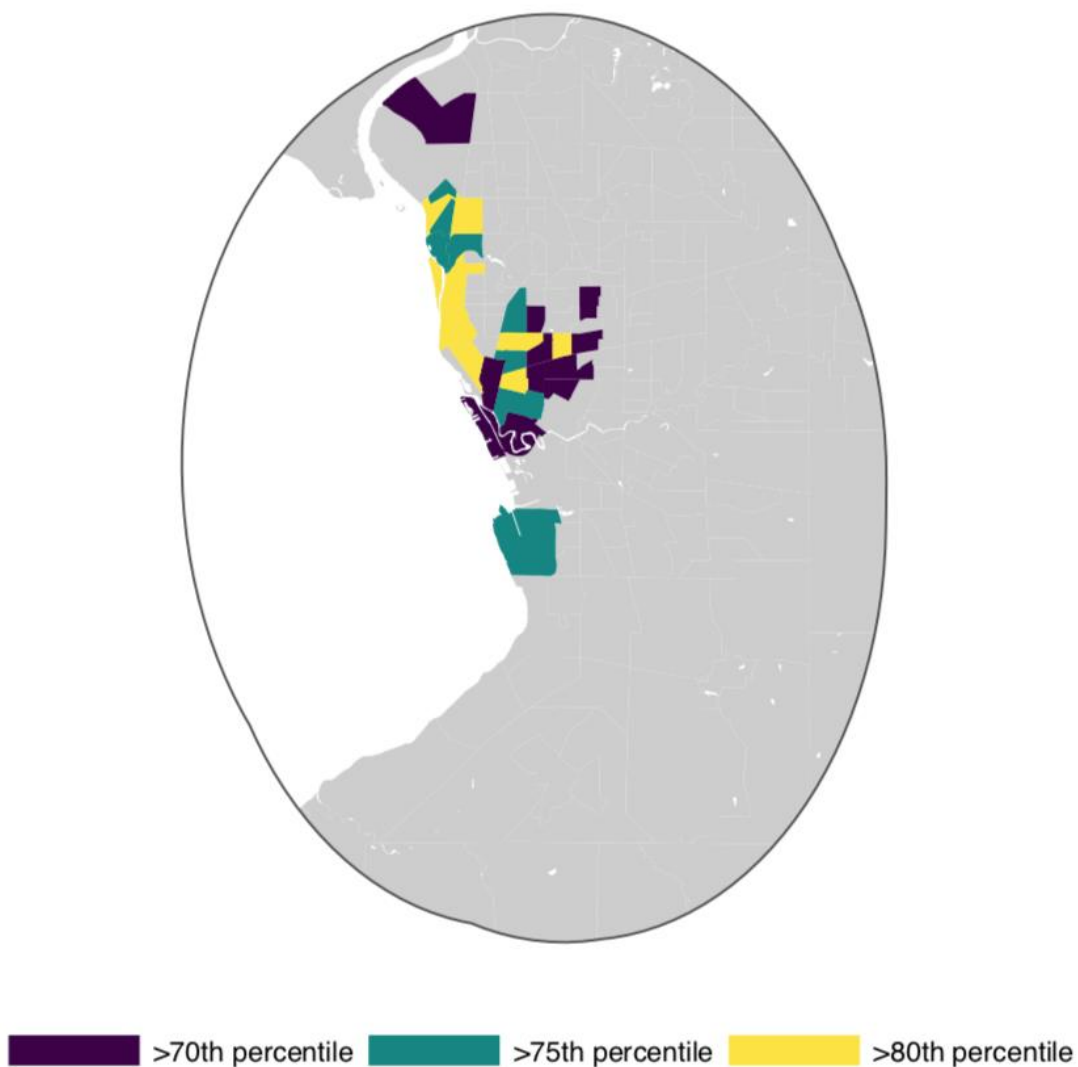
Map 1: Estimated percentile of environmental justice score. The higher the number / redder the color, the greater the level of disadvantage.



Map 2: Projected “Disadvantaged community” location, if the cutoff for disadvantage is at 20%, 25%, or 30% worse-scoring on EJ score (ie, if the census tract is in, or above, the 80th, 75th, or 70th percentile).



Map 3: Projected “Disadvantaged community” location, if the cutoff for disadvantage is at 20%, 25%, or 30% worse-scoring on EJ score (ie, if the census tract is in, or above, the 80th, 75th, or 70th percentile), New York City region.



Map 4: Projected “Disadvantaged community” location, if the cutoff for disadvantage is at 20%, 25%, or 30% worse-scoring on EJ score (ie, if the census tract is in, or above, the 80th, 75th, or 70th percentile), Buffalo region.

Table 1: Pollution Burden Components

Parameter	Components	Source	Measurement
Exposure	Ozone	EJSCREEN (2019)	State percentile of raw value
	PM 2.5	EJSCREEN(2019)	State percentile of raw value
	Traffic density	EJSCREEN(2019)	State percentile of raw value
Environmental Effects	Proximity to national priority sites	EJSCREEN (2019)	State percentile of raw value
	Proximity to risk management plan facilities	EJSCREEN(2019)	State percentile of raw value
	Major direct dischargers to water	EJSCREEN(2019)	State percentile of raw value
	Proximity to treatment storage and disposal facilities	EJSCREEN(2019)	State percentile of raw value

\*For more detail on underlying components see EJSCREEN documentation.

Table 2: Population Characteristic Components

Parameter	Components	Source	Measurement
Socioeconomic Factors	Low Income	EJSCREEN(2019)	State percentile of raw value
	Educational Attainment	EJSCREEN(2019)	State percentile of raw value
	Linguistic Isolation	EJSCREEN(2019)	State percentile of raw value
	Minority Population	EJSCREEN(2019)	State percentile of raw value

\*For more detail on underlying components see EJSCREEN documentation.

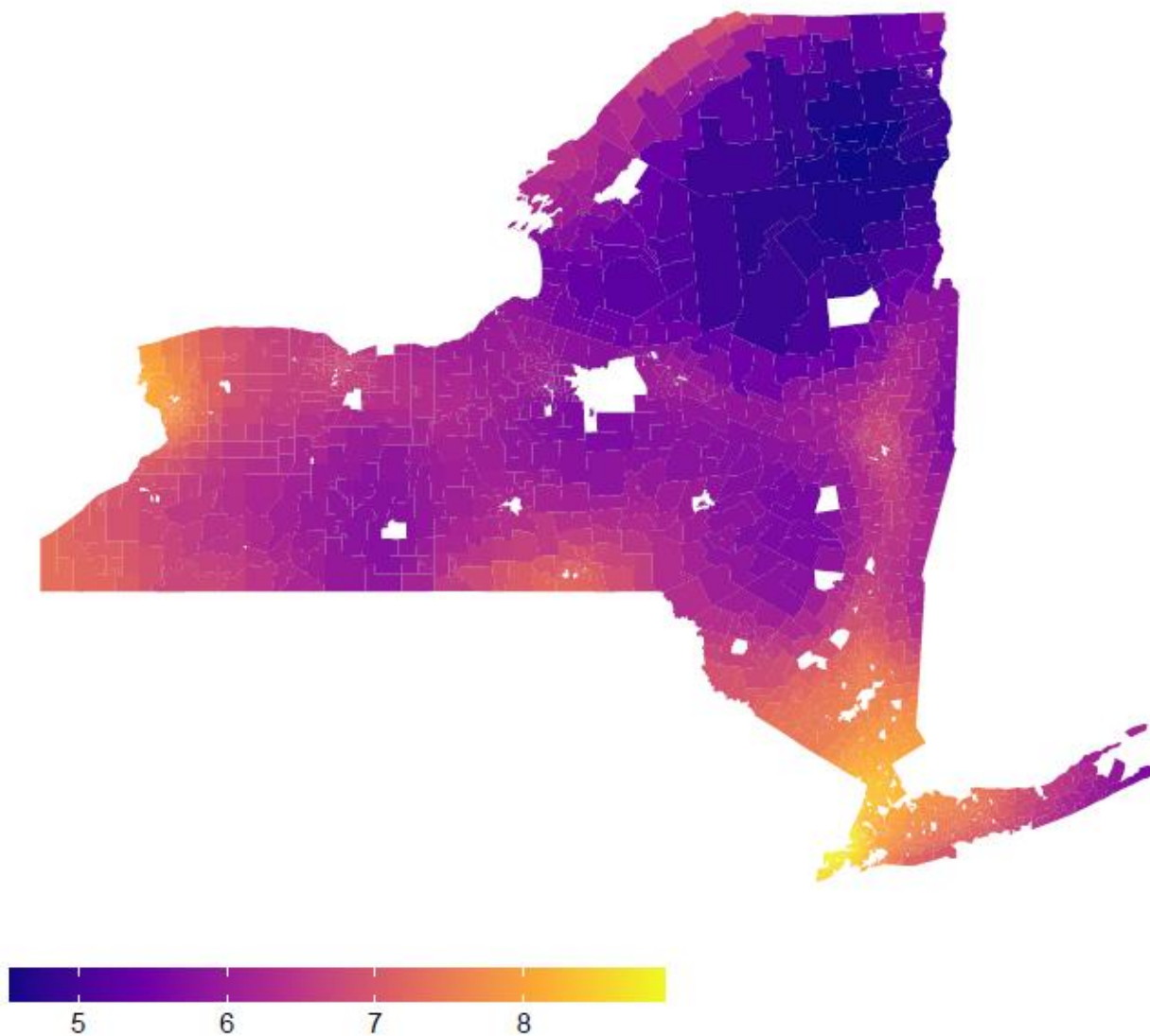
Table 3: Environmental Justice Community Score Calculation

	Pollution Burden		Population
	Exposure	Environmental Effects	Socioeconomic Factors
Parameter Score	Average of exposure measurements	Average of Environmental Effects x .5	Average of Socioeconomic Factors
Average of Parameter Score	(Exposure Parameter Score x Environmental Parameter Score) ÷ 1.5		Average of Socioeconomic Factors
Scaled Parameter Score	(Average of Parameter Score ÷ Statewide Maximum Average of Parameter Score) x 10		(Average of Parameter Score ÷ Statewide Maximum Average of Parameter Score) x 10
Environmental Justice Community Score	Scaled Parameter Score (Pollution Burden) x Scaled Parameter Score (Population Characteristics)		

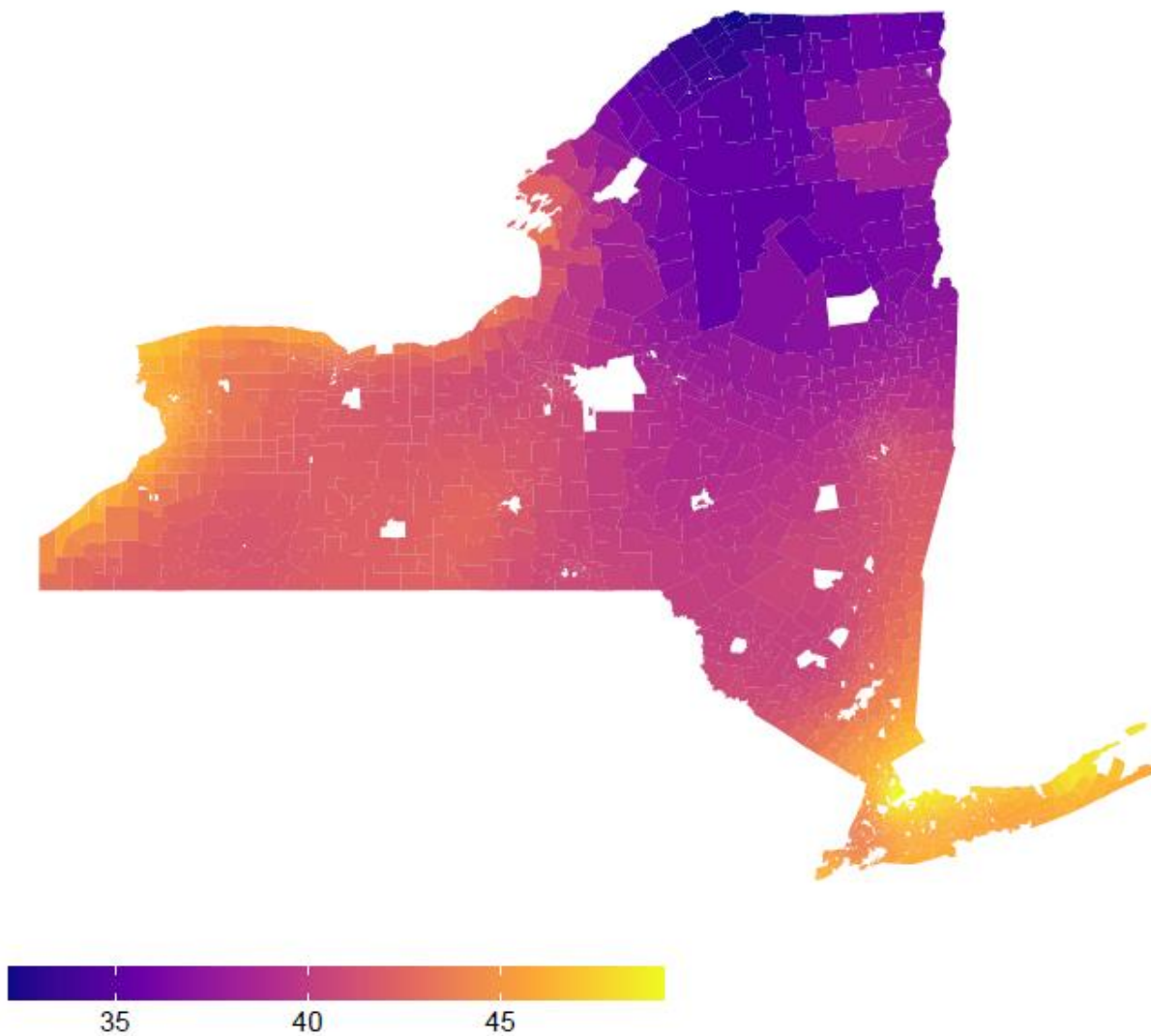
Figure 1: Components of EJ score used for mapping. Provided courtesy of the Good Energy Collective.<sup>91</sup>

<sup>91</sup> “Progressive Nuclear Policy for a Brighter Future.”

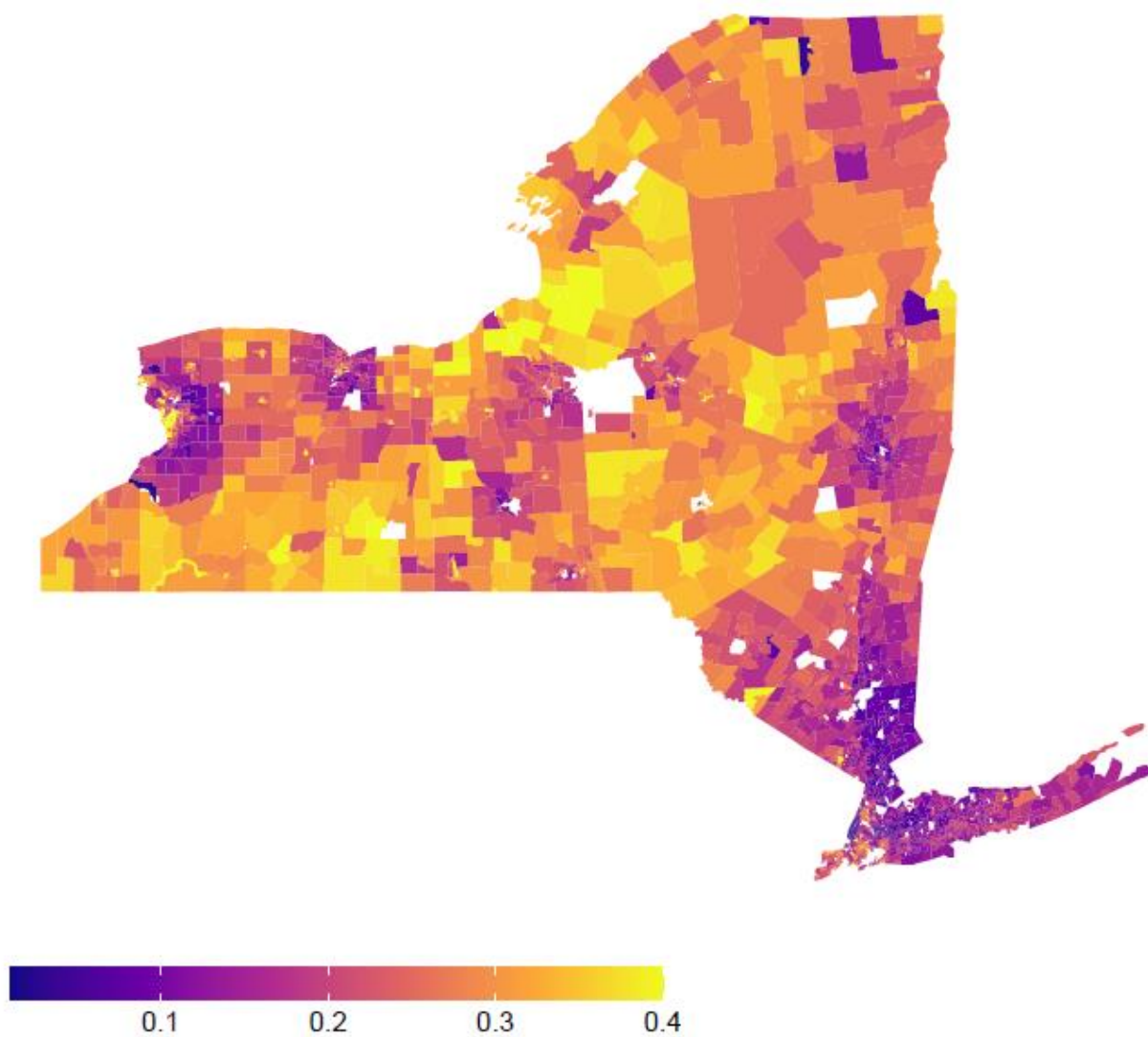




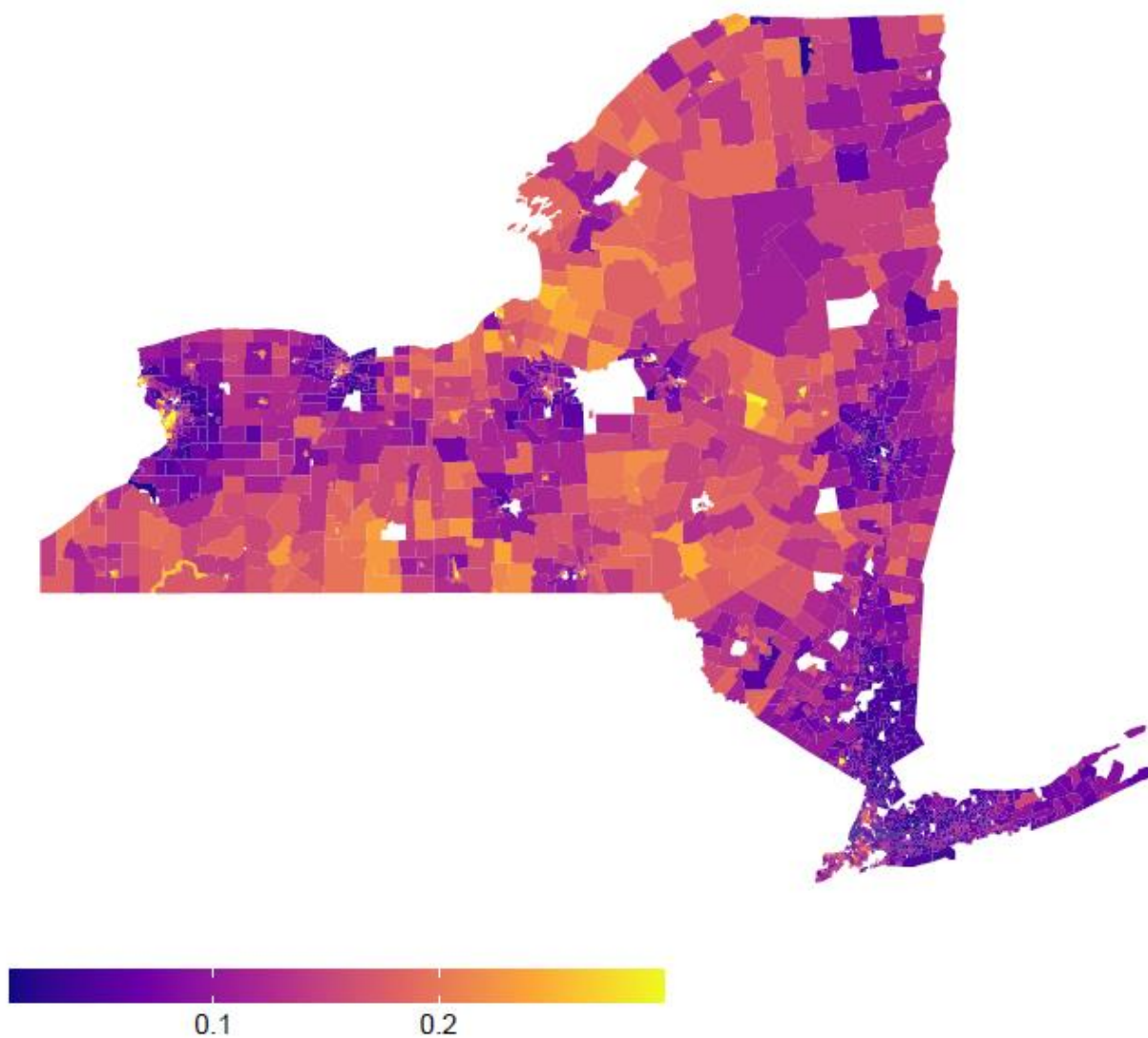
Map 5. PM2.5 concentration across NY state.



Map 6. Ozone concentration across NY state.



Map 7. Proportion of households paying  $\geq 6\%$  of monthly income on gas and electricity across NY state. The yellower the color, the higher the energy burden.



Map 8. Proportion of households paying  $\geq 10\%$  of monthly income on gas and electricity across NY state. The yellower the color, the higher the energy burden.

#### 4.3.1 Transcending the single-region, unilinear scale

We are pleased to see that New York State looks to transcend the pitfalls of a unilinear scale, and to use a two-region approach to defining disadvantaged communities, distinguishing between the New York City region and the “rest of the state” (ROS, in their materials.) In this section, we reproduce a number of slides from a recent Climate

Justice Working Group meeting that were recently made available to ensure that we accurately represent the current state of the discussion.

The strategy used by the State to define disadvantaged communities includes a scale featuring 45 indicators—20 covering environmental burdens and climate risks; and 25 covering population characteristics and health vulnerabilities (see figures 2 and 3). The share of census tracts that the State has deemed disadvantaged is 35% (see figure 4). Thus, to ensure truly disproportionate investment in disadvantaged communities will require treating 40% investment as the practical floor.

The slides reproduced below give more detail on the indicators (see figures 5 and 6). Each variable has been standardized, such that census tracts are scored on a percentile. Two elements of their scoring process stand out. First, environmental burdens and health vulnerabilities are weighted equally, and multiplied (see figure 7). This is a reasonable statistical approximation of compound vulnerability because it gives relative priority to communities with high scores on both scales, whereas adding would give relative priority to communities high on one scale, even if their second score was lower.<sup>92</sup> Second, within environmental burdens, they have equally weighted a) potential pollution exposures *and* land use associated with historical discrimination or disinvestment, and b) potential climate risks (see figure 7).

As a result, climate risk represents fully one quarter of New York census tracts' total disadvantage score. This is a striking departure from California's CalEnviroScreen, where specific measures of climate risk are not present at all, due to the particular historical and political context of that tool's initial development a decade ago.

The State has also committed to including all the 19 Indigenous areas as disadvantaged, and thus eligible for disproportionate investment (see figure 8). We must also note that in the December 2021 public discussion of this fact, the environmental justice advocates present expressed that this measure alone did not constitute anywhere near adequate dialogue and engagement with Indigenous

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<sup>92</sup> Imagine two hypothetical communities. Community A has scores of .50 and .50. Community B has scores of .92 and .25. If you add, Community B is more disadvantaged. If you multiply, community A is more disadvantaged. By multiplying, you prioritize communities that are higher on both scales, relatively speaking, rather than communities that are high on one scale, but not the other.

organizations and we recommend much more consultation and engagement with Indigenous communities than currently facilitated.<sup>93</sup>

Beyond the choices of minimal regional decomposition and emphasis on climate risk, New York has diverged from California in a third key respect. Recognizing that many low-income individuals live outside those specific disadvantaged communities, the State has also proposed to designate all individuals living under 60% of the state-medium income as eligible for investment in disadvantaged communities; however, these individuals would only be eligible for specific climate investments, namely investments related to buildings, like assistance for energy bills, green retrofits, rooftop solar subsidies, etc. One benefit to this designation is that it would increase the share of eligible rural households (see figure 9). This would mitigate some of the urban “bias” of a framework that weights pollution so heavily, which in turn will disproportionately direct investment to urban neighborhoods rather than rural ones.

Thus, consistent with our recommendations, the State has in effect adopted two scales, not just one. In doing so, it has also raised the share of New Yorkers eligible for some form of disproportionate investment to roughly 49% of households (see figure 10). In order to maintain genuine disproportionality in investment—the core principle of justice in the CLCPA—the State will have to aim for at least 50% of eligible investment directly benefiting members of disadvantaged communities.

Reflecting on this detail, we want to emphasize a core point we made in the earlier section: no matter how many variables, scales, or regions are used, there remains a fundamental dividing line created by this kind of legislation—a division between the people and places who qualify as disadvantaged, and those who do not. And many of the latter group will *barely* qualify as advantaged. Fine-tuning the definition will change *which* census tracts or neighborhoods are counted as disadvantaged. No doubt, the current quantitative tool can be improved; this year’s public comment period will be an opportunity for additional feedback, and the tool will be revised annually. But while the accuracy of the tool may be improved, it will never be possible to settle on a matrix that

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<sup>93</sup> New York State Department of Environmental Conservation, *December 13, 2021 Climate Justice Working Group Meeting*.

is absolutely perfect—or beyond the critique of any community group, social movement, academic, or politician.

We wholeheartedly endorse the targeted investment approach, while acknowledging its inevitable tensions and limitations. Indeed, this is precisely why we have argued in this report that the State must *also* pursue a high-road approach of green economic development in general. Targeted spatial investment can only be one part of a broader paradigm of equitable climate investment, to ensure that any green model of economic change benefits the vast majority of New Yorkers who are not already wealthy.

# 1 Indicators: Framework

The Geographic DAC scoring approach uses data from national and state sources to create 45 indicators in the following categories. For each indicator the percentile-rank of each census tract is used in scoring.



Figure 2: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>94</sup>

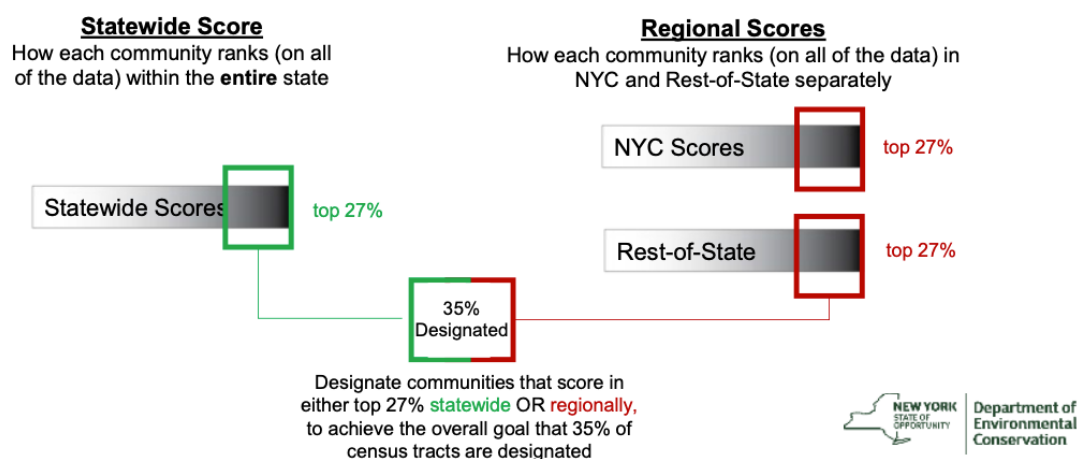
<sup>94</sup> New York State Department of Environmental Conservation, “Climate Justice Working Group DRAFT Disadvantaged Communities Criteria.” All following PowerPoint slides have same citation.

## Proposed Disadvantaged Community Draft Criteria: Summary

Geographic DAC Definition	Individual Criteria (applicable only for investment purposes, ECL 75-0117)
<ol style="list-style-type: none"> <li>1. Include 45 indicators of (a) environmental exposures, burdens and climate change risks, and (b) sociodemographic and characteristics and health outcomes in the Disadvantaged Communities Definition, as listed in the "Indicator Lists".</li> <li>2. Score census tracts on relative basis using (a) percentile ranks of all indicators, (b) hierarchical scoring approach (indicators within factors; factors within component), and (c) multiplying Environmental/Climate component by Population/Health component to get overall score</li> <li>3. Include 35% of New York State census tracts as Geographic DACs, considering each tracts' relative rank (a) statewide or (b) regionally (in NYC or Rest-of-State). Automatically include tracts where at least 5% of land is federally-recognized reservation or owned by an Indian Nation.</li> </ol>	<ol style="list-style-type: none"> <li>4. Include low-income households located anywhere in the State in the Disadvantaged Communities criteria for the purpose of investing or directing clean energy programs, projects or investments.</li> <li>5. Define low-income households as households reporting annual total income at or below 60% of State Median Income, or are otherwise categorically eligible for low-income programs.</li> </ol>
	Annual Evaluation and Review
	<ol style="list-style-type: none"> <li>6. Per statute, CJWG will review DAC criteria and methods at least annually.</li> </ol>

Figure 3: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>95</sup>

### 3 Designation: Consider Statewide and Regional ranking to identify DACs



<sup>95</sup> New York State Department of Environmental Conservation.



Figure 4: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>96</sup>

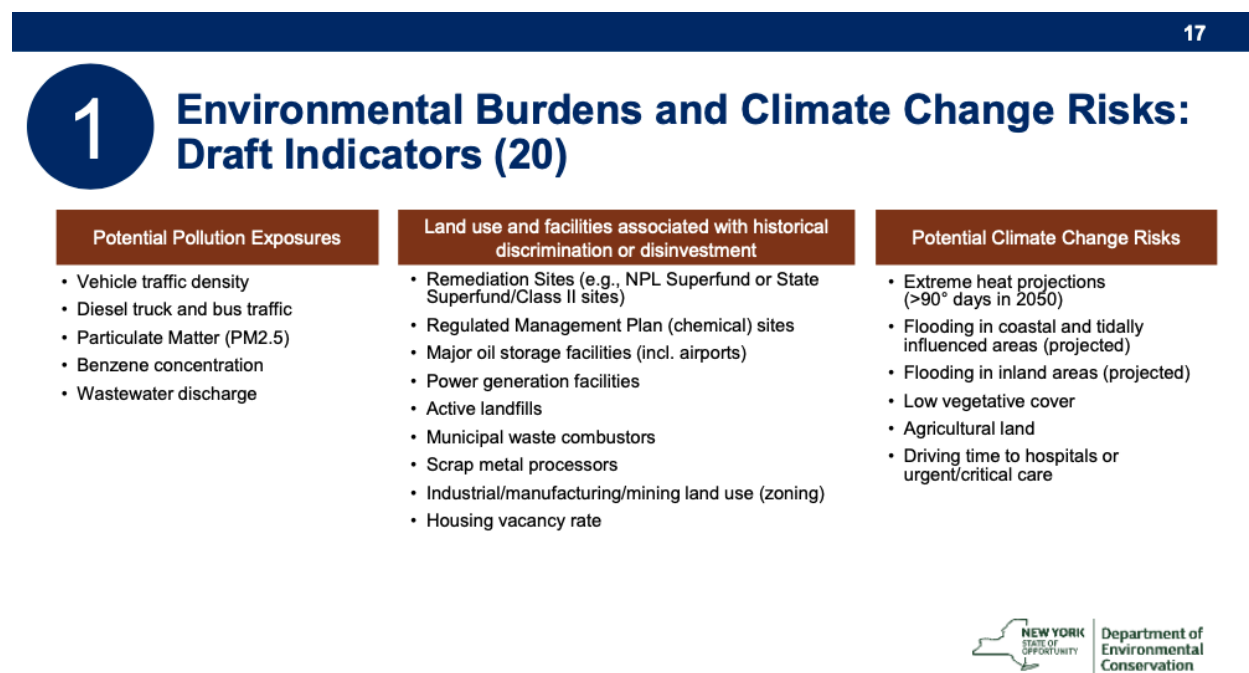


Figure 5: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>97</sup>

<sup>96</sup> New York State Department of Environmental Conservation.

<sup>97</sup> New York State Department of Environmental Conservation.

# 1 Population Characteristics and Health Vulnerabilities: Draft Indicators (25)

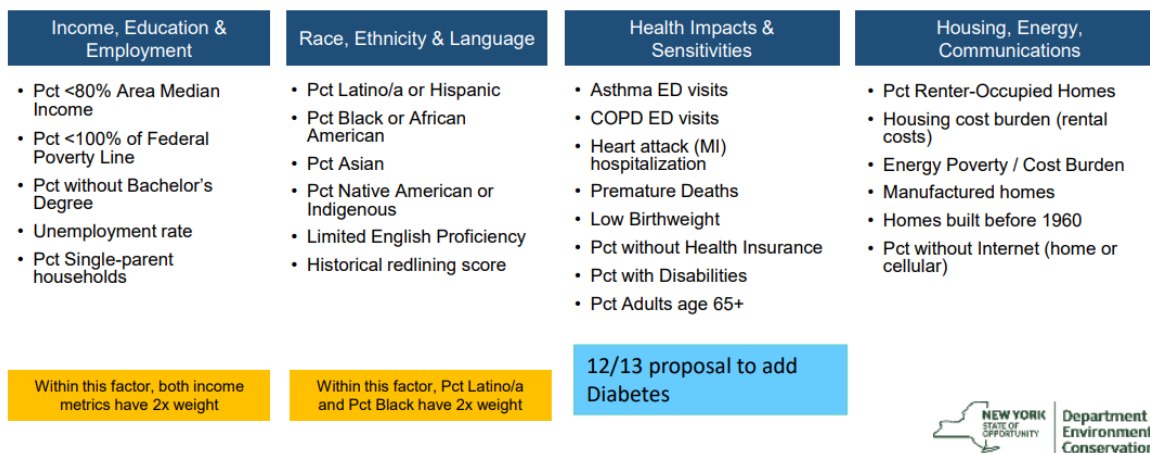
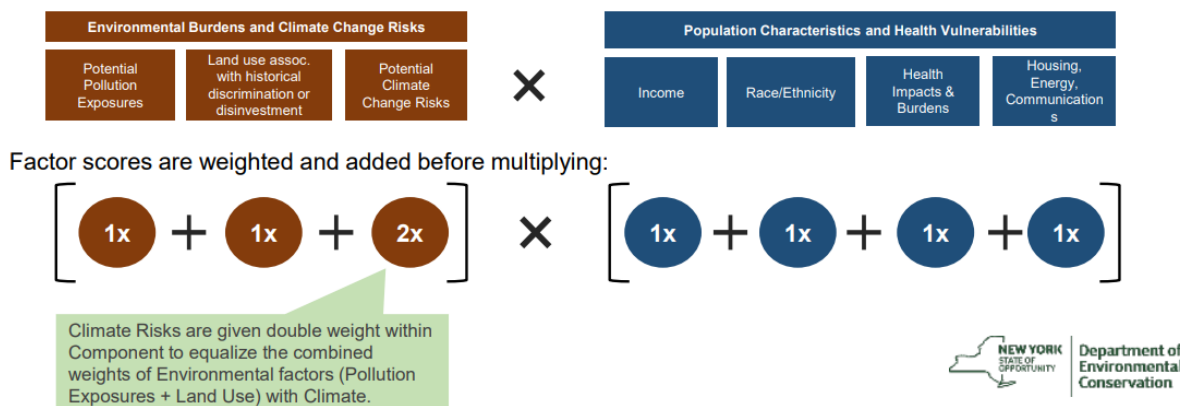


Figure 6: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>98</sup>

# 2 Scoring Approach: Multi-Step Process

Estimate factor scores as weighted averages of indicator percentile ranks (step 1), then estimate component scores as weighted average of percentile scores.



<sup>98</sup> New York State Department of Environmental Conservation.

Figure 7: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>99</sup>

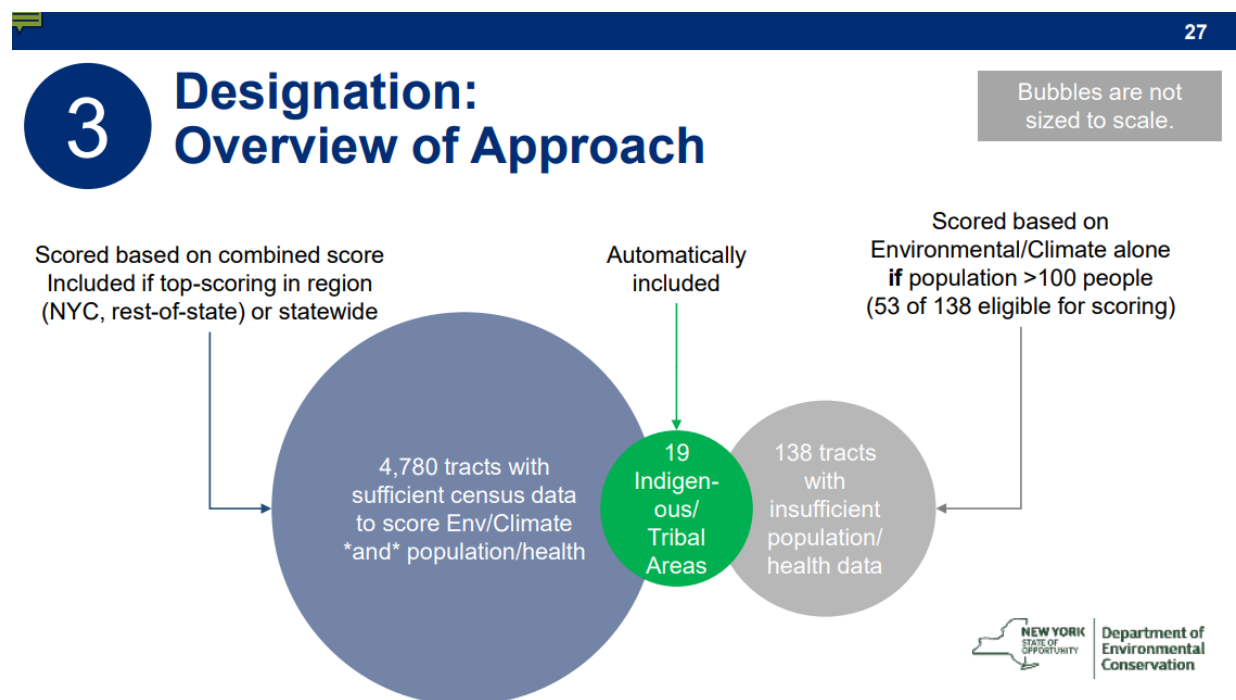


Figure 8: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>100</sup>

<sup>99</sup> New York State Department of Environmental Conservation.

<sup>100</sup> New York State Department of Environmental Conservation.

# 5 Low-Income Definition: Implications by Regions

Using 200% of Federal Poverty Line as a proxy for a 60% SMI definition, the individual income criteria would add relatively (proportionally) more households in rural regions. New York City would still have (proportionally) the most households included.

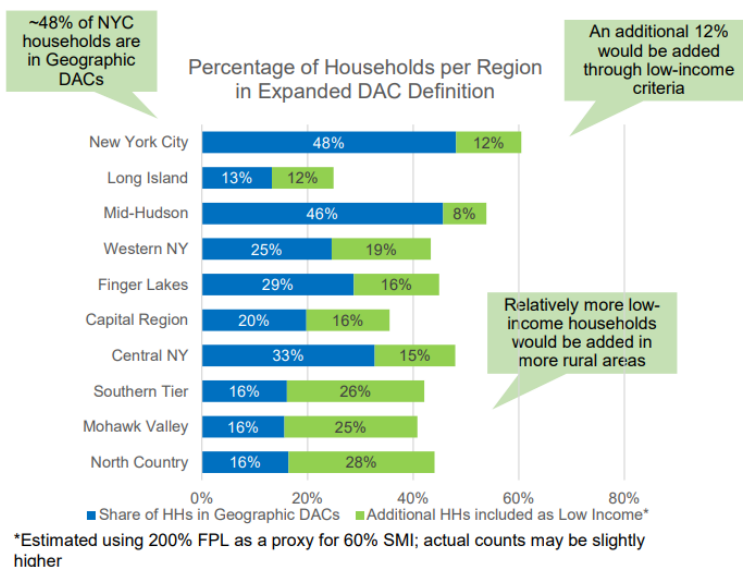
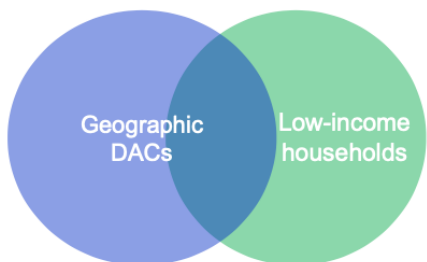


Figure 9: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>101</sup>

# 5 How many households might be included under different low-income definitions

35% of households in geographic DACs  
Lower-income households outside of DACs



Income Threshold	Additional HHs outside of DACs (APPROXIMATE)	Total % of State (geographic + individual DAC)
Adding <100% FPL	+6%	41%
Adding <200% FPL (Proxy for 60% State Median)	+14%	49%
Adding <80% Area Median Income (AMI)	+23%	58%

\*Agencies would implement as <60% of State Median Income. 200% Federal Poverty Line is ~\$6,000 lower than 60% of State Median Income, so more households than shown here would be added.



Figure 10: From Climate Justice Working Group DRAFT Disadvantaged Communities Criteria presentation.<sup>102</sup>

<sup>101</sup> New York State Department of Environmental Conservation.

<sup>102</sup> New York State Department of Environmental Conservation.

## 4.4 Maximizing public benefit from offshore wind and other capital-intensive energy infrastructure

It is likely that targeting policy will produce some conflict over the boundaries of eligibility for disproportionate investment; and potential conflicts within the groups eligible for some funding over who gets what. But that conflict can be lessened by ensuring that there are greater funds to go around. More overall funding would bring greater benefit to all communities. In our view, one of the critical ways to increase the pot of available funding is to recognize that a large amount of seemingly private green investment is inextricably tied to public finance and regulation. As we have shown above, the *apparently* private home mortgage is really a public-private partnership with deliberate racialized consequences. The same will hold true for the *apparently* private green economy. Of course public buses are public. But there can be no electric cars without public investment in the underlying technology and the companies that produce them—Buffalo knows this well. And funding for infrastructure like charging stations constitutes one part of a broader public-private partnership.

We urge extensive consideration of every possible source of green funding that is eligible, based on the recognition that the economy overall is best understood as a public-private partnership—especially the green economy, which public policies are doing so much to foster. Recall, the CLCPA mandates that the State should:

Invest or direct available and relevant programmatic resources in a manner designed to achieve a goal for disadvantaged communities to receive forty percent of overall benefits of spending on *clean energy* and energy efficiency programs, *projects or investments in the areas of* housing, workforce development, pollution reduction, low income energy assistance, energy, transportation and *economic development*.<sup>103</sup> (Our emphasis.)

Note the broad language: “projects or investments in the areas of.”

Here, we use a discussion of the offshore wind industry to develop an example of how broadening the policy frame to recognize the public sector’s role in *apparently*

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<sup>103</sup> State of New York, “NY State Senate Bill S6599.”

private green economic development, and then taking an economic position commensurate with that role that could provide ongoing revenue, would strengthen the aims of the CLCPA.

The offshore wind industry exemplifies large scale green investments' dependence on substantial state assistance—always in the form of regulatory assistance, and usually with direct and/or indirect subsidies. New York has committed to 9GW of offshore wind generation by 2035, the most ambitious offshore wind target in the country. And yet, offshore wind obviously cannot be physically developed in disadvantaged communities. How can the industry be organized to fulfil the CLCPA's mandates? While one can impute health benefits to communities that benefit broadly from a transition to clean energy, in the form of cleaner air and a more stable climate, there is no reliable way to apportion the benefits of a particular offshore wind farm to any particular community.

We suggest a more straightforward apportionment of benefit: monetary transfer. If the public sector were to become a shareholding investor in offshore wind developments, they would receive regular revenue; a portion of that revenue could be directed into green investments in disadvantaged communities.

This builds on the spirit of broader discussions and models of public ownership in clean energy, especially in Europe, albeit with some differences. In Europe, public ownership of wind resources has been most common with onshore wind developments.<sup>104</sup> Sometimes, public ownership involves public utilities; at other times, perhaps most impressively, public ownership came in the form of cooperatives. In countries like Germany and Denmark, rural wind energy cooperatives were essential to building public support for the clean energy transition in the 1990s and 2000s; one of their key contributions was to entrench the idea of wind as a source of economic development in politically conservative rural areas.<sup>105</sup> This had beneficial results for national political cultures; conservatives were just as supportive of wind energy development as were political parties further to their left.

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<sup>104</sup> Morris and Jungjohann, *Energy Democracy*.; “Shared Ownership of Onshore Renewable Energy Developments.”

<sup>105</sup> Morris and Jungjohann, *Energy Democracy*.; Davidson, “Germany Has Built Clean Energy Economy That U.S. Rejected 30 Years Ago.”

Not all public ownership of wind resources in Europe comes in the form of cooperatives. In many countries, public utilities own the resources. And there are cases where we see a combination of public utility and cooperative ownership, perhaps most notably in the successful offshore Mittlegrunden wind farm, built in 2001 near Copenhagen. The project provides 40 megawatts of electricity. Half is owned by Copenhagen Energy, a municipal utility, and half by a local cooperative, which is collectively owned by over 10,000 shareholders.<sup>106</sup>

The greatest barrier to cooperative ownership of *offshore* wind is the capital-intensity of these projects. Offshore wind farms are vastly more expensive to build than the smaller on-shore developments often owned by community groups.

Nonetheless, other forms of public ownership are possible. Public, national energy companies could be offshore wind developers—indeed, they sometimes are. Just not in the United States. In fact, three of the world’s five largest offshore wind developers are state-owned enterprises: Orsted (Denmark), Vattenfall (Sweden), and Equinor (Norway).<sup>107</sup> And while these are European companies, Middle Eastern state-owned enterprises like Masdar are playing increasingly prominent roles in offshore wind. As Andrew Cumbers, the author of *Reclaiming Public Ownership*,<sup>108</sup> pointed out to us in an interview, the United Kingdom’s ostensibly private offshore wind industry consists of public regulation and subsidies, the leasing of Crown-owned waters, and the development of offshore wind fields by developers owned by other countries’ governments. New York State faces the same potential paradox, with foreign state-owned firms like Orsted acting here as private developers, while bringing economic benefit to Danish communities. Why should New York State’s residents, workers, and communities not also participate in all the economic benefits that come from offshore wind development?

Here, public utilities like the New York Power Authority could also act as developers.<sup>109</sup> There is also an option with a lower barrier to entry. NYSERDA could be

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<sup>106</sup> Cumbers, *Reclaiming Public Ownership*.; Sorensen et al., “Experience with and Strategies for Public Involvement in Offshore Wind Projects.”

<sup>107</sup> Staff, “Top 5 Offshore Developers.”

<sup>108</sup> Cumbers, *Reclaiming Public Ownership*.

<sup>109</sup> Bozuwa et al., “A New Era of Public Power.”

empowered to invest between 20% and 49% into a private project. It could hold shares in the wind company in perpetuity. It could require that these shares yield annual dividends, based on revenues. Following the model of shared ownership of clean energy in Scotland, shared ownership would not be a substitute for specific community benefit agreements, but would be additional.<sup>110</sup>

There is increasing interest among economists of innovation in the idea that public investment—direct and indirect—in private enterprise should be linked to ongoing public ownership.<sup>111</sup> After all, the public sector is already mobilizing resources and taking risks to advance private enterprise. Why should it be barred from also taking financial rewards? The case is especially strong with infrastructure.

Any offshore wind development bears some risk of failure or disappointing returns; but the risks are low. New York State’s entire climate policy rests on the assumption that companies will soon deliver gigawatts of offshore wind energy to local consumers. At the level of sector, there is simply no alternative. Moreover, offshore wind is a proven, reliable technology for delivering cost-effective, carbon-free energy.

In New York State, NYSEERDA, NYPA, or New York’s Green Bank could make the investments. The state could also add provisions to licensing agreements with private companies whereby the state reserves the right to buy a certain percentage of additional shares upon the company’s completion of key milestones during project development. Revenue could come in the form of dividends for the preferred shares held by the relevant public entity.

The state’s revenue from its ownership stake in offshore wind could be spent in various ways. It could seed a minimum income to some or all New Yorkers, along the lines of the Alaska Permanent Fund, which derives from the state’s oil revenues. However, we would urge that the funds be spent on green community infrastructure, disproportionately in disadvantaged communities. Communities should be able to choose what form this investment takes. It could be used, for instance, as direct support for institutions like childcare centers, schools, and libraries; it could be used to seed cooperative clean energy projects; it could be used to fund apprenticeship programs for

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<sup>110</sup> “Shared Ownership of Onshore Renewable Energy Developments.”

<sup>111</sup> Mazzucato, *The Entrepreneurial State*.



green careers; it could be used to capitalize a small-scale public bank that makes local green investments.

New York State should also consider providing distributed ownership of its shares in offshore developments. State agencies could distribute shares to individuals and/or groups in disadvantaged communities in an arrangement similar to community power purchase agreements, or energy cooperatives. Multiple legal forms are possible. The point would be to grant communities collective ownership over a part of an offshore wind project, understanding that community ownership of an entire offshore wind project is infeasible.

The global offshore wind market is already valued at nearly \$50 billion dollars.<sup>112</sup> And this market is set to grow exponentially off the coast of New York State. It would be unconscionable to exclude investment in offshore wind from the climate justice provisions of the CLCPA. A public ownership stake yielding public investments in disadvantaged communities is the best way to ensure a democratic distribution of benefits.

In addition to all of this, we also recommend that NYSEDA take steps to facilitate the negotiation of community benefits agreements between offshore wind developers and community groups of various kinds. In these negotiations, NYSEDA must incorporate the full supply chain of the development process.

For instance, offshore wind developments could a/ provide scholarships for members of disadvantaged communities to undertake job training and union apprenticeship programs; b/ provide scholarships for members of disadvantaged communities to study STEM at SUNY and CUNY universities, and in supplementary summer programs for High School, Community College, and University students; c/ facilitate union contracts at every step of the process, including the construction, loading, transportation, unloading, and assembly of offshore turbines; d/ localize as much of the construction process as possible in appropriate industrial sites in disadvantaged communities.

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<sup>112</sup> Konzept Analytics, “Global Offshore Wind Market (Equipment, Installation & Turbine Services): Insights & Forecast with Potential Impact of COVID-19 (2020-2024).”

And all offshore wind projects should require project labor agreements (PLAs)—like those that NYSERDA already has in its solicitation standard. PLAs can help facilitate the use of highly skilled labor and smooth project management, as the terms and conditions of large-scale projects are negotiated before construction begins. PLAs also ensure labor-management peace and ensure timely project conclusion. NYSERDA has already seen the benefit of using PLAs and the offshore wind solicitations include commitments to project labor agreements. Given the scale of the state’s offshore wind targets, these projects are essential to showing that decarbonization not only creates jobs but creates good, union jobs.

And the state should, to the greatest extent possible, ensure that new manufacturing and assembly facilities be located in frontline communities *subject to the condition* that communities favor the location of any particular facility, and that these comply with the most stringent environmental regulation. An example of this approach is the agreement on wind turbine assembly on the Brooklyn waterfront, an agreement negotiated with the environmental justice group UPROSE.<sup>113</sup> Whether or not it is feasible to locate all production facilities in disadvantaged communities, most apprenticeship programs should be located there, to ensure that members of those communities have priority access to climate career training opportunities.

NYSERDA could begin by commissioning studies to explore each of these recommended policy pathways. Public ownership of some or most of the forthcoming offshore wind development, and sophisticated policies to localize workforce development and labor standards to benefit workers and disadvantaged communities, would maximize the economic and other benefits of green investment across the State.

## 4.5 Ensuring community control of green investments

Community control over green investments is essential; but defining it is challenging, for the details of any particular project or program area will vary widely. There is a

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<sup>113</sup> Sandoval, “Meet the Green Agitators Who Planted Seeds for Brooklyn’s Coming Wind Turbine Assembly Hub.”

tension between broad but vague guidelines, and specific but narrowly applicable rules. Academic research, and our outreach to environmental justice leaders in California and New York has confirmed this tension.<sup>114</sup> Overall, we urge consistent participation at every level and stage of the policy and implementation processes; but the State must also increase community groups' capacity, for instance by funding accountable research, so that they can take advantage of these opportunities.

In California, the CalEnviroScreen tool has endured in large part thanks to its legitimacy with environmental justice groups; above we explained that this is based in their long-term involvement in the tool's development and refinement. The same level of legitimacy will be required in New York State. And that requirement will be even greater if the State follows our recommendation to use more than just a single, unilinear scale. If a more complex set of tools is used, it will be all the more important to have EJ and community groups' support for all the processes used to allocate investments. One key element of this participation must be research inputs from beyond traditional academic and government channels. Groups like NYC-EJA have found that hyper-localized air pollution monitoring now provides better data than do state monitors. Citizen science, whose achievements form the basis of so much environmental justice scholarship and policy today, must continue to be respected.<sup>115</sup>

This raises a second key issue: the State must support capacity-building within community groups, so that they are able to participate in policy processes without being intimidated or out-maneuvered based on asymmetries of knowledge and power. One way for the State to do this is for NYSEDA fund a research network, based in universities, including New York State's public universities, that generate key environmental and social science research products that are fully accessible to community groups, and done as often as feasible in partnership with community groups. Scholarships should facilitate disadvantaged community members' access to these research programs,

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<sup>114</sup> Baiocchi and Ganuza, *Popular Democracy*.; Baiocchi, Heller, and Silva, *Bootstrapping Democracy*.; Cha et al., "Just Transition/ Transition to Justice: Power, Policy, and Possibilities."; "Environmental Justice, Just Transition, and a Low-Carbon Future for California | Environmental Law Reporter®."; Cohen, "The Rationed City."

<sup>115</sup> Sze, *Noxious New York: The Racial Politics of Urban Health and Environmental Justice*, 2007; Gilmore, Mulgaonkar, and Oyewole, "Community Air Mapping Project for Environmental Justice: Findings and Recommendations Report."

including by pursuing degrees at all levels. It is essential that NYSERDA scale up its support for university-based, peer-reviewed research to ensure that decisions about New York State's policies are subject to rigorous science conducted in the public interest.

With sufficient State support, community and EJ groups must be involved at every stage of the policymaking process, from the formulation of rules—as is occurring now—to implementation. One way to increase EJ and community representation is to create bodies like California's Strategic Growth Council which help manage program areas—like California's Transformative Climate Communities program—that deliver targeted green investments. Institutional vehicles like these can avoid more *ad hoc* forms of participation, in which community and EJ groups will lack meaningful capacity to shape policy implementation. Moreover, the Transformative Climate Communities program also suggests that New York would benefit from NYSERDA funding that ensures even more robust linkages between research and implementation, including the provision of substantial research capacity to community groups.

We also urge channels of participation that involve the State Assembly and State Senate. Excessive concentration of power and accountability in the Governor's office is undemocratic; the basic principles of American federalism and division of powers demand that participation be channeled throughout the governance apparatus, not just the executive branch.

## APPENDIX 1: New York State Climate and Equity Mapping Tool (Beta)

Overall, we have developed substantial interactive mapping capabilities that allow one to peruse the state's regions to explore a range of different social, economic, and environmental vulnerabilities. We believe these maps are consistent with the view that investments and household economics are essential determinants of environmental injustice as experienced by individuals in communities. In this appendix we describe our statewide tool, and provide some maps that exemplify our capabilities and some takeaways.

An interactive tool for exploring layers across all metropolitan areas and micropolitan areas in New York state can be found at the following link:

<https://ngraetz.shinyapps.io/climateandequity/>

The beta tool takes advantage of new data science techniques to downscale survey data.<sup>116</sup> The purpose of this tool is to provide finer-grained, high-quality demographic detail at the neighborhood scale across New York State; such data is highly relevant for ensuring the effectiveness of equity-oriented green investments, like targeted climate spending in disadvantaged communities. Future iterations will improve the interface, add data layers, and show the overlay between demographic data, energy infrastructure data, and environmental harms data. The development of this data tool was largely funded by the New York State Energy Research and Development Authority (NYSERDA).

The “Location” dropdown includes a list of all metropolitan areas and micropolitan areas. These areas are delineated based on the following [definitions](#) from the Census Bureau: “Each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. Each micropolitan statistical area must have at least one

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<sup>116</sup> Graetz, Ummel, and Aldana Cohen, “Small-Area Analyses Using Public American Community Survey Data.”

urban cluster of at least 10,000 but less than 50,000 population.” Layers can be selected using the “Layer” dropdown.

A custom scale can be specified using the “Custom scale” button, and the color gradient can be reversed using the “High is good” button. Extreme outliers can be detected and removed from generation of the scale automatically using the “Detect outliers” button.

Layer dictionary:

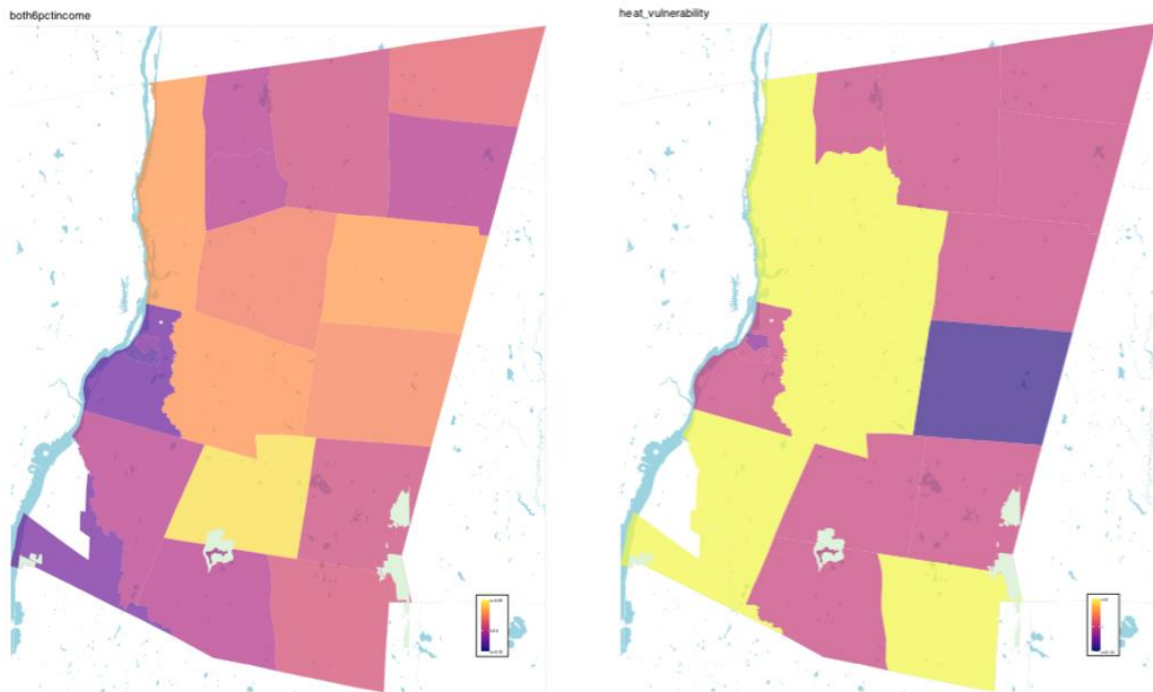
- **Medicaid enrollment gap, 2015-2019**
  - Proportion eligible for Medicaid but reporting no health insurance (based on data from the American Community Survey).
- **Police killings, 2013-2020**
  - Cumulative police killings since 2013 (based on data from the [Mapping Police Violence Project](#)).
- **% essential workers, 2015-2019**
  - Proportion of employed working in "essential" occupations (based on data from the American Community Survey). This category is defined based on an [ACLU](#) definition and corresponds roughly to what is colloquially known as the “working class” – namely, occupations that are relatively low-wage, include low worker autonomy over work conditions, and tend to require in-person, rather than virtual, laboring conditions.
- **% extreme housing cost, 2015-2019**
  - Proportion living in a household with selected monthly owner costs - including mortgage payments - greater than 35% of monthly income or with monthly rent greater than 35% of monthly income (based on data from the American Community Survey).
- **Heat vulnerability index, 2015-2019**
  - Electricity as percent of income / local heat exposure (based on data from the 2015-2019 American Community Survey and land surface temperature data from MODIS 2018). In contrast to typical definitions of urban heat

islands, “indoor heat islands” are areas where households struggle economically to manage extreme localized heat.

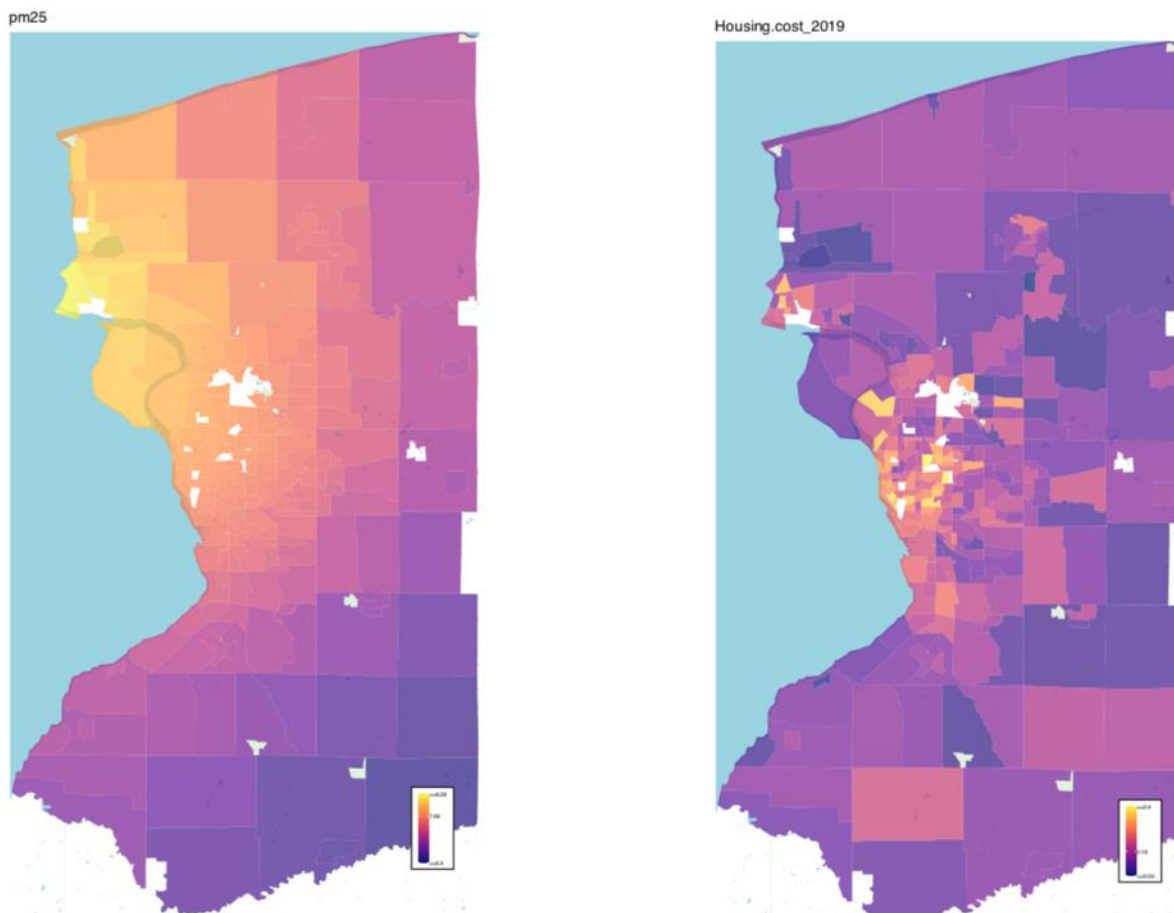
- **Eco-apartheid index**
  - Defined as a composite indicator of the five items above using the first principal component. A higher value of this index is associated with higher values on all five items above.
- **Change in % BIPOC population, 2010-2019**
  - Absolute change in the percent of the total population that identified as any Census racial-ethnic category besides “White alone, not Hispanic or Latino” (based on 2010 Census data and the 2015-2019 American Community Survey).
- **Change in % Black population, 2010-2019**
  - Absolute change in the percent of the total population that identified as “Black or African American alone” (based on 2010 Census data and the 2015-2019 American Community Survey).
- **Change in % extreme housing cost, 2010-2019**
  - Absolute change in the proportion living in a household with selected monthly owner costs - including mortgage payments - greater than 35% of monthly income or with monthly rent greater than 35% of monthly income (based on 2010 Census data and the 2015-2019 American Community Survey).
- **% paying over 6% monthly income on electricity and gas, 2015-2019**

Proportion living in a household that pays more than 6% of monthly household income on electricity and gas (based on data from the 2015-2019 American Community Survey).

- **PM2.5, 2017**
  - PM2.5 levels in air,  $\mu\text{g}/\text{m}^3$  annual average (based on data from the [EPA EJSCREEN](#)).
- **Ozone, 2018**
  - Ozone summer seasonal average of daily maximum 8-hour concentration in air in parts per billion (based on data from the [EPA EJSCREEN](#)).

**Sample maps from across New York State:****Energy Insecurity (left), Heat Vulnerability (right), Hudson Valley**

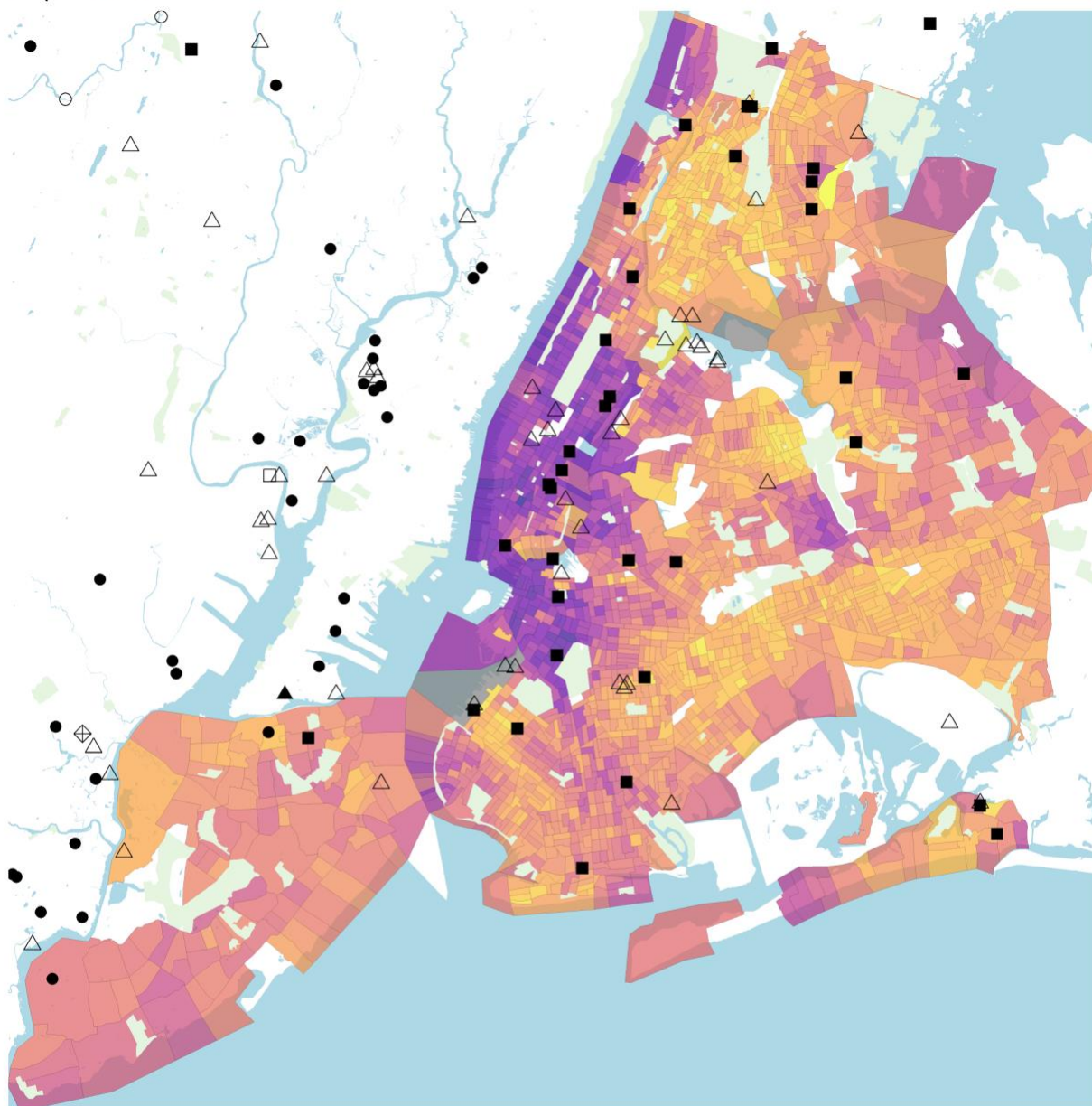




**PM 2.5 exposure (left), Housing Burdens (right), Buffalo**

## Sample maps of New York City:

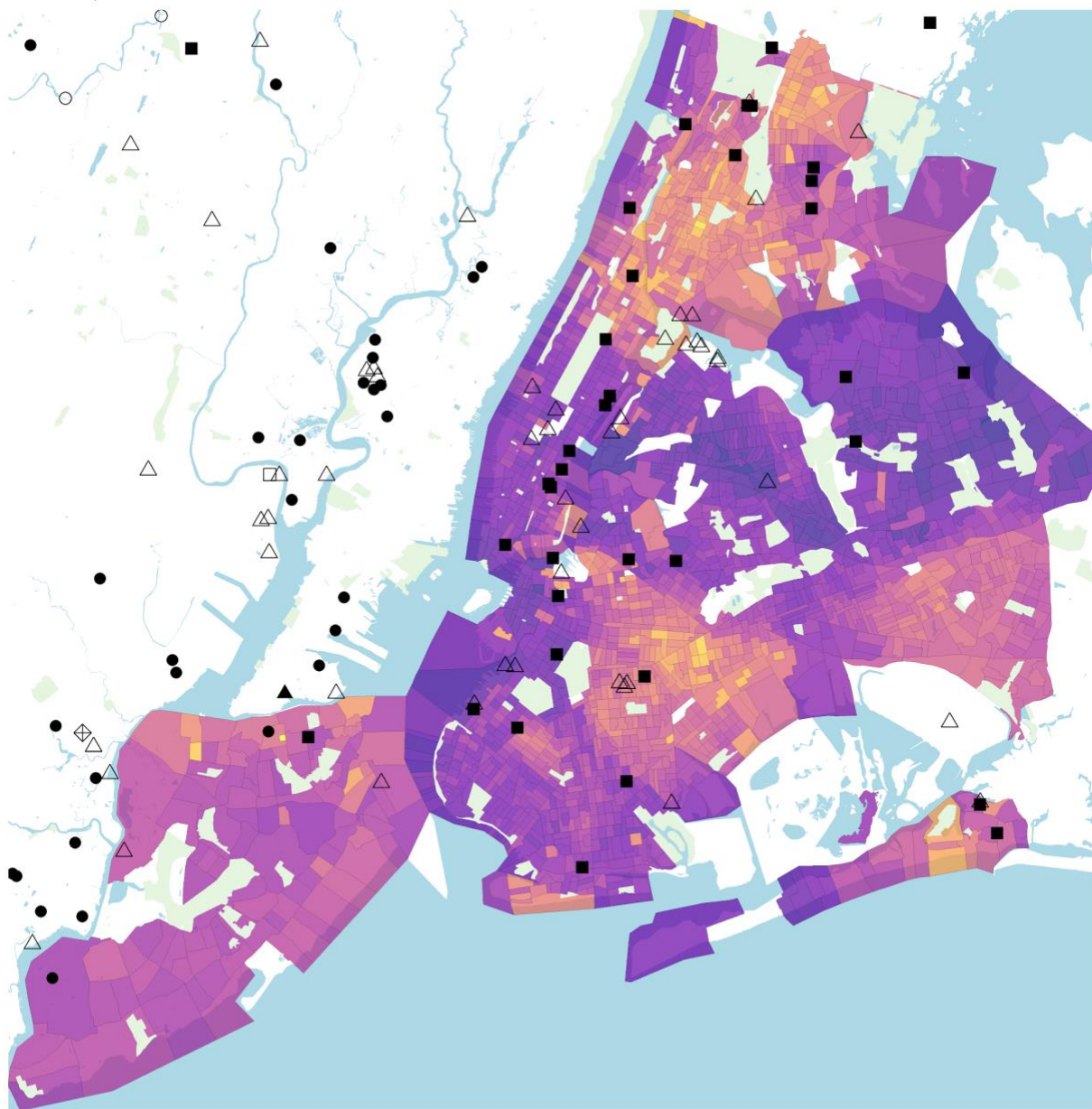
Proportion in essential work



□ biomass      △ natural gas      ■ petroleum      ▲ wind  
 ○ hydroelectric      ◇ other      ● solar

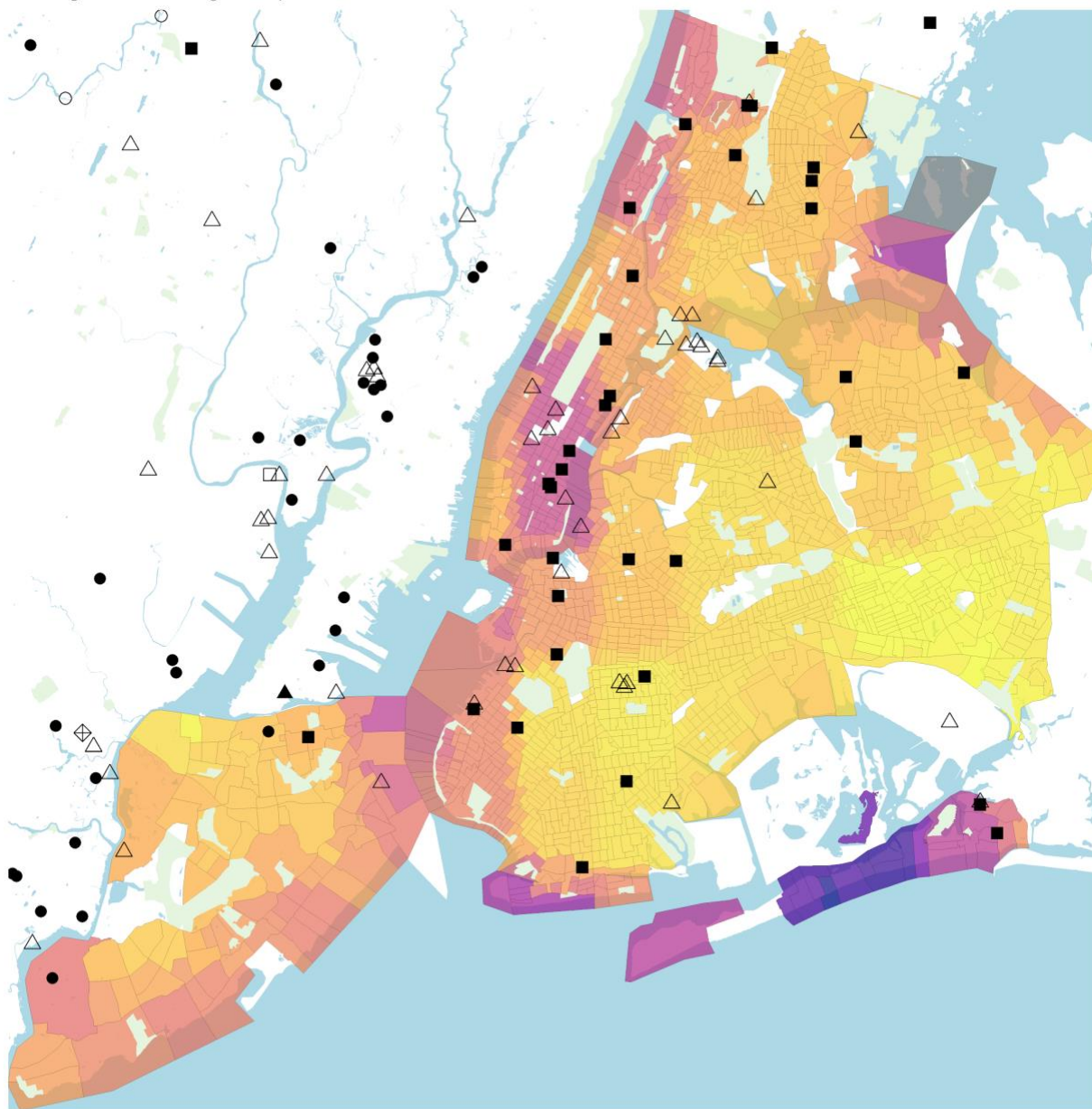


Asthma prevalence



- biomass      △ natural gas      ■ petroleum      ▲ wind
- hydroelectric      ◇ other      ● solar

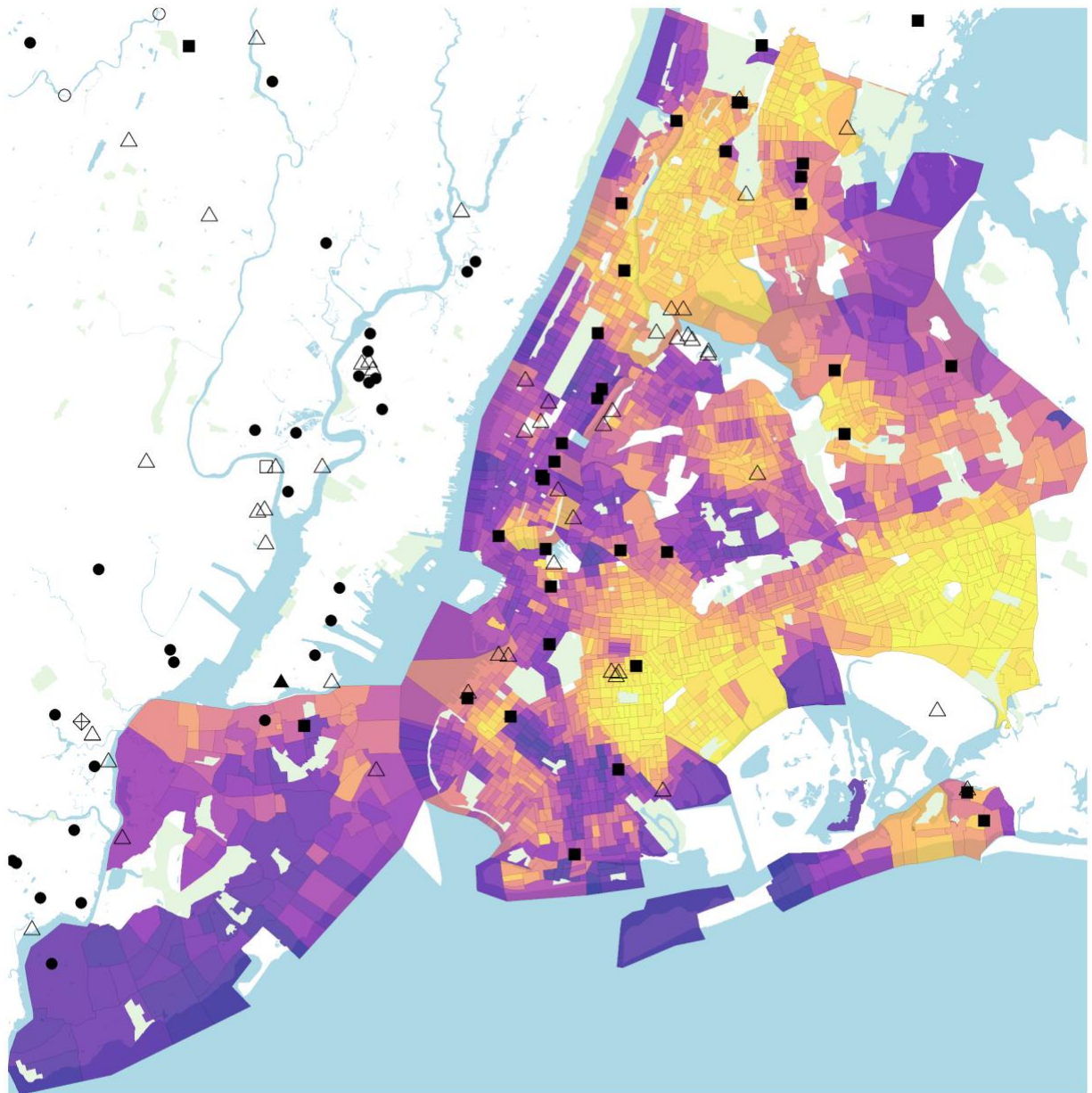
Average summer high temp



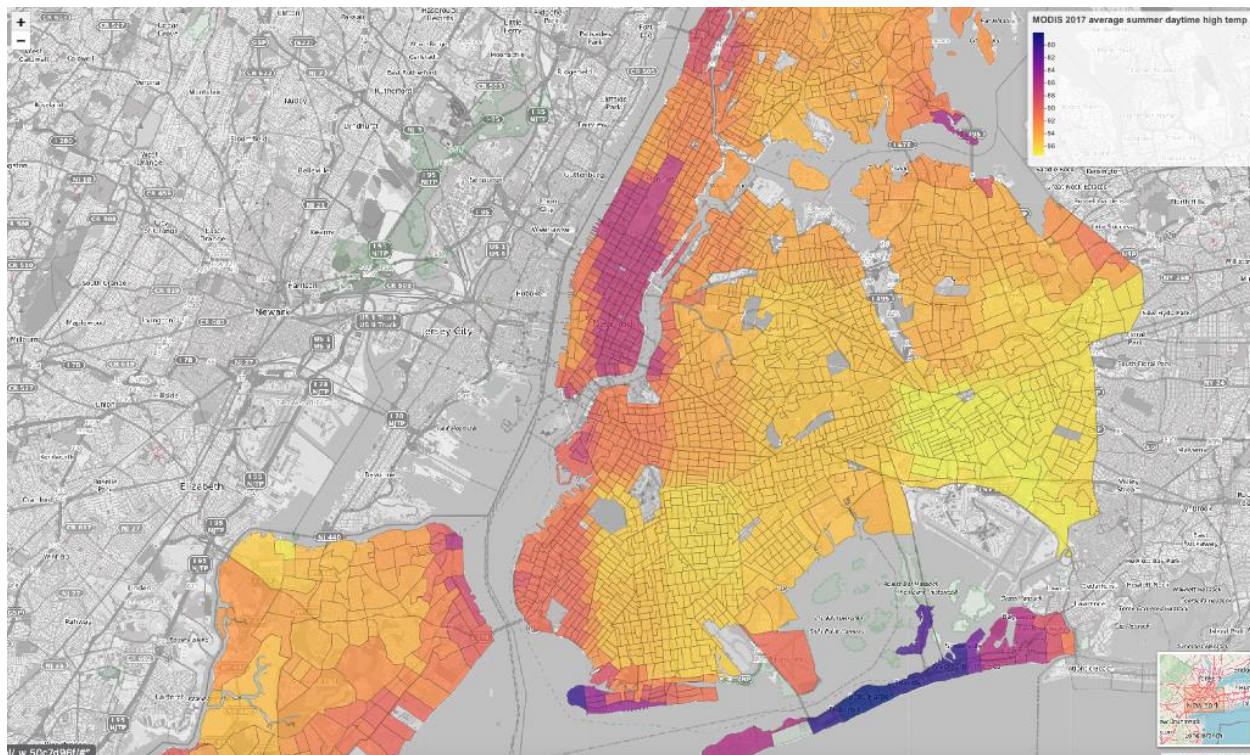
- biomass      △ natural gas      ■ petroleum      ▲ wind
- hydroelectric      ◇ other      ● solar



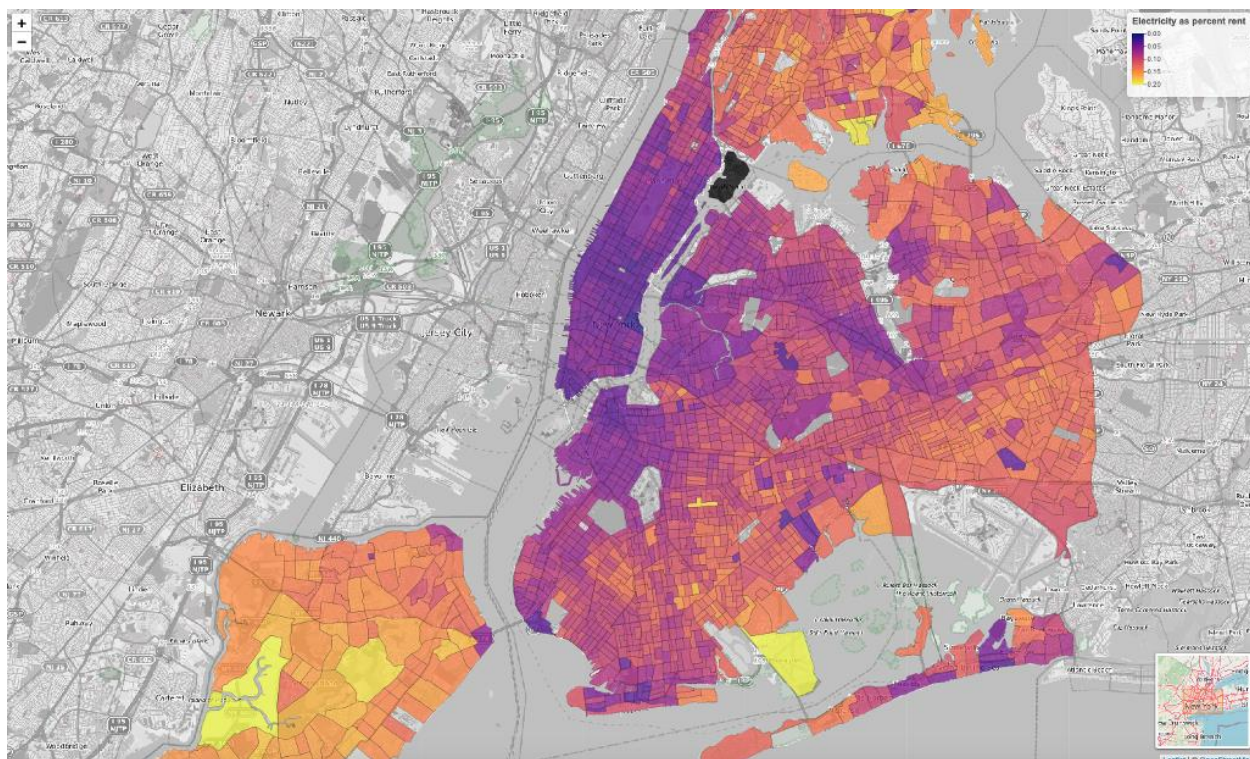
% non-white



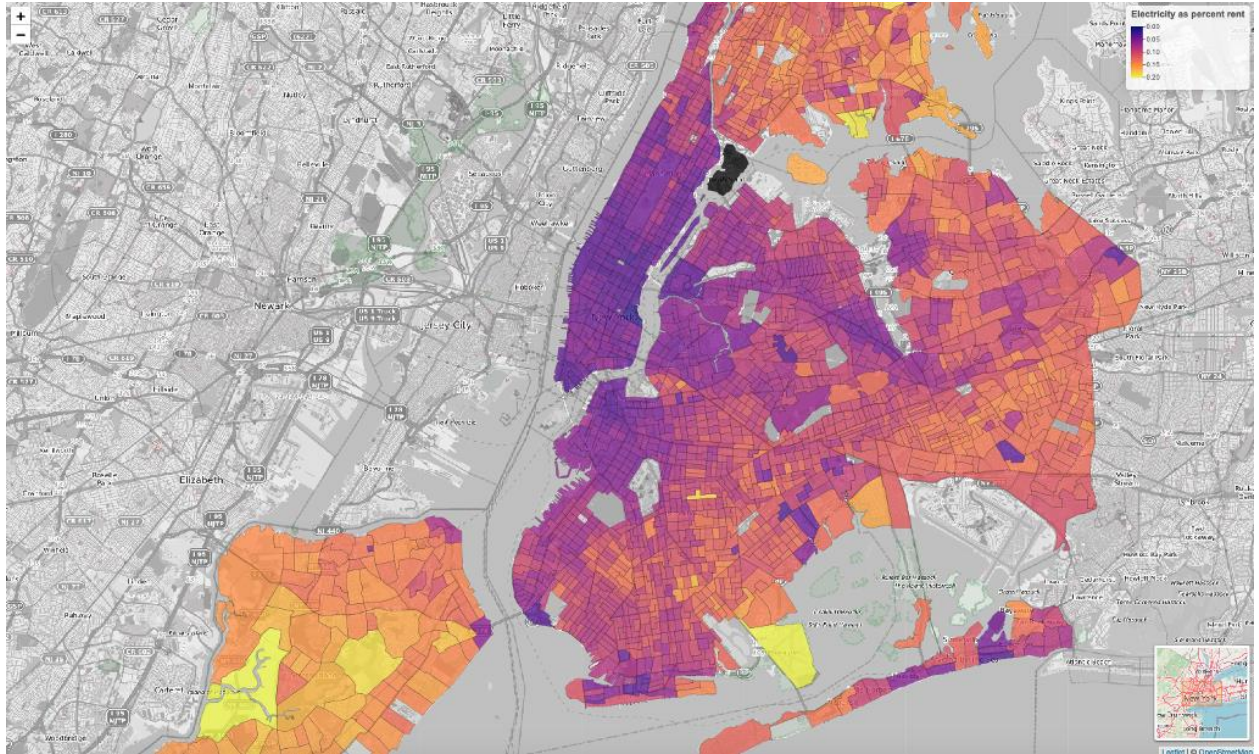
- biomass      △ natural gas      ■ petroleum      ▲ wind
- hydroelectric      ◇ other      ● solar



**Summer daytime temperature**



**Electricity as a % of rent**



**Indoor heat island**

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