Evergreen Collaborative | Dēmos

Designing a New National Equity Mapping Program

Identifying Communities That Face Environmental Injustice, Using Lessons Learned from State Equity Mapping Programs

Introduction

Environmental racism has devastated communities across the United States for generations—from slavery, through Jim Crow, redlining, and decades of forced segregation. In many cases, environmental injustice represents deeper patterns of unequal access to political power, justice, and capital, resulting in systemic exposure to the harms of economic activity, even as the benefits of the corresponding prosperity were withheld. The facts are indisputable. One recent study found that "redlined" communities—those that were historically excluded from fair and affordable home ownership and denied access to credit—see 2.4 times the rate of hospital admissions for asthma as do non-redlined communities in the same city. People of color disproportionately live in neighborhoods located near toxic release facilities. And federal environmental policies continue to discriminate—for example, after storms and other disasters, the Small Business Association approves rebuilding-assistance loans at nearly twice the rate in white neighborhoods as in Black neighborhoods. And the Trump Administration doggedly weakens environmental laws, like the National Environmental Policy Act (NEPA), that attempt to protect the most vulnerable communities from toxic pollution and environmental exploitation.

Because of structural racism and institutional inequity, Americans in communities of color and low-income communities face huge obstacles as they attempt to build healthy lives and thriving livelihoods. As the United States prepares for a future fundamentally marked by climate instability, it is an economic and moral imperative to build true climate justice today.

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Several states (California, New York, Washington, and Maryland, in particular) have already adopted (or are adopting) an *Equity Map*, which is a critical tool for helping to identify these disadvantaged communities. To confront these challenges at the federal level, the Evergreen Action Plan similarly calls for the next Administration to launch a new federal Equity Mapping initiative to track the *cumulative impacts* of exposure to pollution, health disparities, and economic inequality, and to ensure that future climate-led investments are distributed equitably. Demos likewise proposes Equity Mapping of vulnerable communities as part of a Climate Equity Accountability System in its Frontlines Climate Justice Executive Action Platform. Following the example of states engaged in this work, the federal government should determine which communities experience the most harm in order to ensure that policy implementation prevents further inequality and remediates historic harms.

An effective Equity Map gathers data about environmental exposures and demonstrates how those exposures are distributed spatially and geographically and how they overlap and interact with other health, economic, demographic, and social vulnerabilities each unique community faces. It then displays that information on cumulative impacts in ways that help policymakers understand where the hardest-hit communities are located.

A tool like this, known as EJSCREEN, already exists at the federal level. However, its current capabilities are insufficient to effectively inform equitable policy implementation. For instance, EJSCREEN does not analyze the cumulative impact of how pollution intersects with social and economic disparities, nor is it constructed or used to inform federal decision-making on a proactive basis. Moreover, the federal government too often falls short in forming trusted relationships with impacted communities, in gathering data to inform a truly effective Mapping effort, and in leveraging the technical expertise and existing data sets currently housed across the federal bureaucracy to better understand and utilize this information to improve decisions and achieve better economic and health outcomes for communities.

With a more robust and carefully constructed Equity Mapping Program in place, the federal government could jumpstart the path to climate justice. As early efforts in key states have shown, an effective Equity Mapping Program could build the relationships, data, and accountability needed to more accurately identify which communities have faced the greatest harm from environmental impacts and from structural inequities. It could then direct resources to remedy those harms at the community level and prevent policies from causing further injury. And this initiative is popular—polling from Data for Progress shows that 67% of voters support a federal Equity Mapping initiative. This memo explores state-level Equity Mapping efforts to date, and explains how a new national Equity Mapping Program could realize far greater public benefit for all people.

Part I examines how states have defined which harms characterize a *disadvantaged*

community (as explained in the definitions section, this is a term-of-art used within this policy space, not a term of our choosing) and how states have used Equity Maps to identify and locate those communities. Part II discusses the limitations of EJSCREEN, the currently analogous federal program. Part III suggests that, like the states, the federal government should define disadvantaged communities by the cumulative impact of environmental harms and socioeconomic disparities. It then describes how a new federal Equity Mapping Program could be designed. And Part IV discusses how this strengthened Map should be used to advance environmental justice proactively nationwide.

An Equity Map is important, but not in itself sufficient, to ensure that disadvantaged communities receive the investments that justice demands. Rather, establishing a national Equity Mapping Program must also be accompanied by policies and budget commitments that put this information to work to screen federal investment and decision-making to help the federal government direct resources to the places that need them most.

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Key Definitions

Equity Map

A program that gathers data about environmental exposures and analyzes (1) how those exposures are distributed spatially and geographically and (2) how they interact with other spatially-distributed health, economic, demographic, and social vulnerabilities. The Equity Map displays this information in ways that help policymakers understand where communities that experience multiple co-occurring vulnerabilities are located.

Cumulative Impacts

EPA guidance states, "Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time." In this context, cumulative impacts refer to a measure of how multiple environmental harms (such as exposure to different types of pollution) co-occur and then interact with extant population characteristics (like health, economic, demographic, and social factors) to produce amplified harm.

Disadvantaged Community

Like California, New York, and the Build Back Better Clean Energy Plan released by a presidential campaign in the summer of 2020, this memo uses the term "disadvantaged community" to describe the communities an Equity Mapping Program designates as having experienced the greatest cumulative harm from environmental exposures, health disparities, economic inequality, and other identified indicators. It is important to note, however, that some environmental justice communities critique the term "disadvantaged," and the Washington and Maryland Mapping programs do not use it. Other similar terms could be used instead of "disadvantaged," including "frontline community," "environmental justice community," "highly impacted community," or "overburdened community."

Equity Screen

A policy that uses the results of an Equity Map to improve decision-making. For example, Equity Screening policies can include targeting a certain percentage of programmatic spending into identified disadvantaged communities, preventing pollution permits from being issued in disadvantaged communities, or evaluating regulations to understand their potential impacts (positive and negative) on disadvantaged communities.

I. Equity Maps at the State Level

Several states (California, Washington, New York, and Maryland) have already sought to identify disadvantaged communities, and have built (or are currently building) Equity Mapping tools to locate those communities based on established criteria. These state efforts reveal several things: (1) environmental justice (EJ) advocates and community groups are essential to the creation of Equity Maps, (2) states, with input from these EJ leaders, have adopted definitions of "disadvantaged communities" that account for the cumulative impact of environmental pollutants and population characteristics (like socioeconomic factors), (3) Equity Maps have the highest chance of success when they are built with official state support, and (4) attaching Equity Screen policies, like targeting investments or examining disparate impact of relevant regulations, to Equity Maps can ensure that disadvantaged communities are prioritized in government decision-making.

Environmental justice advocates and community groups have led the fight to create Equity Maps at the state level. In California, a statewide Advisory Committee on Environmental Justice recommended that the state develop a "peer-reviewed science-based tool to assess cumulative impacts in communities" (essentially, an Equity Map) as early as 2000. EJ groups were then able to win the codification of an Equity Mapping initiative following the creation of California's Cap and Trade system. In Washington, Front and Centered, a statewide coalition that represents people of color and people of lower incomes, partnered with a state agency in the absence of a legislative or executive mandate to build an Equity Map from the ground up. And in New York, NY Renews, a coalition of over 200 environmental, justice, faith, labor, and community groups, led the effort to pass the Climate Leadership and Community Protection Act in 2019, which directed New York to create a tool to identify disadvantaged communities.[1] These groups have guided the creation of Mapping tools, ensuring that the voices of impacted communities are heard, and they continue to point out places where government falls short. The development of a federal Equity Map must be done in conjunction with local, state, Tribal, and federal EJ groups.

EJ groups in these states have arrived at at least one shared conclusion for the creation of related Maps—the definition of a disadvantaged community (or in Washington state, a "highly impacted community") must be based on the cumulative impact of how environmental harms interact with vulnerabilities of the population, rather than on race alone, or income alone, or pollution alone. It is the multiplication of several harms that characterize this injustice. As

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[1] As the New York effort is still in progress, it remains unclear exactly what form their identification tool will take.

the California Environmental Justice Alliance (CEJA) writes, "Although communities usually experience pollution from multiple sources, most environmental statutes and regulations address each source from an individual standpoint." CEJA and its allies sought to change this with CalEnviroScreen, California's Equity Mapping tool. CalEnviroScreen "breaks from this single-issue framework by assessing multiple, combined environmental stressors," and by considering "socioeconomic and health-related vulnerabilities that can aggravate pollution exposure." Similarly, New York's authorizing legislation defines disadvantaged communities as, "communities that bear burdens of negative public-health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate-income households." Every existing state-level map gathers data about environmental exposures and population characteristics and then synthesizes the two to determine the spatially-distributed cumulative impacts and burdens that communities face.

While each of these Maps embraces cumulative impacts, not all of the state Maps were developed as government-sanctioned efforts. California and New York have legislative mandates to create their Maps; Washington and Maryland do not. The Washington Health Disparities Map was the result of grassroots, community-driven organizing efforts. The results are impressive, and prove this method is

possible. But Washington advocates continue to work to ensure that state legislative and regulatory policies incorporate the map into their work. Even more trenchant, the Maryland map remains unfinished. And a previous effort in Maryland was abandoned due to insufficient funding, uncompensated staff, and an unclear mandate.

In order for the federal government to ensure that a federal Equity Map succeeds, a clear and thorough Executive Order or piece of legislation should mandate a comprehensive mapping tool, accompanied by the necessary funding and staffing levels to design and implement such a tool.

Finally, with Maps in place, some states have enacted critical Screening policies to use this data to inform improved policy development. Government decision-making processes based on the results of an Equity Map have been called an *Equity Screen*—as in, the government is Screening policies, rules, and programmatic investments to ensure that these decisions are creating meaningful benefits for disadvantaged communities and not exacerbating existing inequalities.[2] These Screens may include investing a certain percentage of overall spending into disadvantaged communities, preventing pollution permits from being issued in disadvantaged communities, or evaluating regulations to understand their potential impacts, positive and negative, on disadvantaged communities.

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[2] One note of potential confusion here must be clarified—several existing Equity Maps, like CalEnviroScreen, have the term "Screen" in their names. While using the Map as a Screen on decision-making is absolutely necessary to achieve justice, developing the Map itself is an essential first step. This memo explains how to create that Map.

Under law, 25% of climate investments from California's Cap and Trade revenue

25%

must go to disadvantaged communities as identified by the Equity Map

$1 Billion

50%

of $2 billion in projects went to these communities

Screening policies in the states have resulted in valuable changes for communities. In California, thanks to an investment target mandating that at least 25% of climate investments from the Cap and Trade revenue go to disadvantaged communities as identified by the Equity Map, over $1 billion of $2 billion (well over the 25% floor) in projects went to these communities in 2019. Thanks to the momentum created by this statutory requirement, communities across California have benefitted from substantial investments in affordable housing, public transportation infrastructure, low-income solar panel adaptation, and environmental clean-ups as a direct result of the Map and accompanying Screening policies.

In Washington, even though the Map was created without a state mandate, legislators have since begun to direct Screening policies that are based on the data and understandings that the Map provides. For example, the Washington State Department of Natural Resources used the Map to inform a grant program aimed at increasing community tree planning, planting, and management activities. And the 2019 Clean Energy Transformation Act directed Washington state utilities to use the Map in equitably distributing benefits and burdens. These state-level Maps establish strong precedents for how an effective federal Equity Mapping Program should be designed. And when Equity Maps are accompanied by strong Screening policies, change happens.

II. The Limits of EJSCREEN

The federal government already has a tool for visualizing environmental and demographic data across communities nationwide, but its uses are limited and it is currently insufficient to support a transformative national agenda confronting environmental racism and economic injustice.

The tool, known as the EJSCREEN, was created during the Obama Administration pursuant to President Clinton's Executive Order (EO) 12898, which focused federal attention on the health and environmental impacts faced by low-income communities and communities of color. That EO tasked federal agencies to "collect, maintain and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income." In response to this directive, EJSCREEN, like the state-level Equity Maps discussed above, gathers environmental and demographic data at varying geographic scales from across the nation and allows the public to visualize that data on a Map.

But EJSCREEN has several significant limitations. First, it lacks many data sets that are essential to understanding environmental injustice. Second, the tool does not calculate cumulative impacts. Rather, it displays the concentration of one pollutant or one demographic data set at a time. Without a cumulative impact analysis, the federal government is hard-pressed to

arrive at a comprehensive understanding of where the most vulnerable communities are located across the country. Third, because the EO contains no directive for what could qualify as a disadvantaged community, EJSCREEN is not used to identify any area as requiring special attention. Without this classification, the tool fails to highlight where the most harm has occurred. Fourth, the tool is not used "as a basis for agency decision-making or making a determination regarding the existence or absence of EJ concerns." The Map, likely because it does not have the necessary levels of statutory or executive authorization or buy-in, has no Screening policies attached to it. Thus, it cannot catalyze truly transformative policy, investments, or protections for disadvantaged communities.

Beyond EJSCREEN, no other federal tool comprehensively identifies which communities have been most impacted by environmental harms or directs the federal government to remedy those harms. In fact, given that Equity Mapping efforts that capture and display the cumulative impacts of environmental and economic harms are relatively new, the federal government lacks some of the data and infrastructure needed to create a successful tool as well. Although the data and analytic resources currently found across federal agencies are substantial, and could offer a powerful support if they were aligned to work in combination, for the above reasons, a new federal Equity Mapping Program is urgently needed to catalyze change.

III. Policy Recommendations for How to Design an Effective Federal Mapping Program

> A new federal Equity Mapping Program that gathers lessons from the states to accurately assess cumulative impacts at the community scale (and empowers the Map to inform Equity Screens), could create meaningful change in communities that face environmental and economic harm.

A new federal Equity Mapping Program that gathers lessons from the states to accurately assess cumulative impacts at the community scale (and empowers the Map to inform Equity Screens), could create meaningful change in communities that face environmental and economic harm. Because jump-starting an Equity Mapping Program is a matter of directing a federal agency to collect, analyze, and display certain kinds of publicly available data, it likely can be achieved either through Executive Order or legislation. Even if an Executive Order (EO) is issued, a legislative mandate should still follow to ensure that the Equity Mapping initiative could not be easily undone by a future Presidential administration. A legislative mandate could also unlock additional funding, ensure that the data collected is appropriately stewarded as an asset, and require that the Map be utilized across federal agencies as part of a Screen on federal regulatory, budgetary, and other policy actions.

Regardless of the mechanism through which a new Equity Mapping Program is created, the federal government should do the following:

1. Define "disadvantaged communities" as those communities facing the greatest cumulative impact from environmental harms and population vulnerabilities, like economic and health disparities.

Because of generations of discrimination, race and income demographics are often consistent indicators of which communities face the greatest health disparities from pollution. But in order to make a thorough accounting of where pollution has accumulated, how that pollution burden interacts with the vulnerabilities of low-income communities and communities of color, and how that distribution changes over time moving forward, the federal definition of a disadvantaged community should mirror the states' approach and include multiple environmental indicators as well as population characteristics. As explained by researchers in Washington state, "population characteristics often modify and amplify the impact of pollution exposures on certain vulnerable populations." Then, the synthesis of multiple data sets, accounting for the interplay between demographics, pollution, economic well-being, and health, results in a different, nuanced understanding of where harm has occurred. So, while federal policies should certainly support communities that are low-income or are facing other challenges, the Equity Mapping program is necessary to identify a particular type of complex harm that is experienced disproportionately by communities of color across the United States.

2. Specify what types of data EPA researchers, in conjunction with other federal agencies, should gather to conduct the cumulative impact analysis.

Here, the legislative initiatives in California and New York provide good roadmaps for a federal EO or legislative mandate. For example, California's authorizing legislation states:

These communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:
- *areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.*
- *areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment.*

New York's authorizing legislation states:

Disadvantaged communities shall be identified based on geographic, public health, environmental hazard, and socioeconomic criteria, which shall include but are not limited to:
- *areas burdened by cumulative environmental pollution and other hazards that can lead to negative public health effects;*

- *areas with concentrations of people that are of low income, high unemployment, high rent burden, low levels of home ownership, low levels of educational attainment, or members of groups that have historically experienced discrimination on the basis of race or ethnicity; and*
- *areas vulnerable to the impacts of climate change such as flooding, storm surges, and urban heat island effects.*

While California's legislation does not direct the Map to include climate change impacts or race as indicators in understanding where disadvantaged communities are located, New York's does. In order to get the fullest picture of where vulnerable populations are located, an EO or legislation should likely direct the federal Mapping Program to include climate change impacts, as well as a full suite of social demographic indicators, including race. Overall, deciding exactly what pieces of data are included in the Map should be subject to a rigorous public process, as detailed below.

To be sure, some of the data suggested above may not yet exist comprehensively at the federal level. Directives to gather such data nationally will help make the resulting tool more effective and will ensure that federal policy is increasingly responsive to the full scope of environmental and social inequities facing vulnerable communities.

3. Direct EPA[3] to hold a notice and comment period, with public hearings in affected communities.

These hearings should focus on precisely which indicators and data sets will be used in the Map's creation and how those inputs will be weighted. As stated above, environmental justice advocacy groups, like California Environmental Justice Alliance, Front and Centered in Washington, and NY Renews in New York, have been the driving forces behind the state-based Equity Maps. While the EPA and other federal agencies already maintain a few nationwide data sets, the Map should include high-quality sub-national and local data where possible. Local, state, Tribal, and national environmental justice groups, as well as leaders from educational institutions (especially HBCUs, HSIs, and Tribal Colleges and Universities) and communities facing environmental harm, must be partners in gathering that data and creating the Map. The input of these communities and partners cannot be merely symbolic; it must be used to inform the creation of the Map. Their perspectives and power should be centered as the Map is created.

[3] EPA could also consider hosting an "X Prize"-type competition to identify and partner with an outside organization to create an open-source, publicly available Map.

4. Direct EPA to consult with the relevant federal environmental justice council for input on data collection and analysis.

Just as EPA should consult with EJ groups and affected communities, the agency should also ensure that government experts on environmental justice are at the table. Currently, the National Environmental Justice Advisory Council (NEJAC) is likely the most relevant group (but new groups and formats have been proposed). With leadership steeped in equity and accountability, a federal environmental justice interagency group can ensure that the perspectives of EJ communities are reinforced regularly. For example, these EJ leaders can help ensure that the technical experts at EPA analyze the data in a way that accurately reflects realities on the ground.

5. Direct EPA to rank the equity scores for communities across the country in order to determine which communities meet the threshold to qualify as "disadvantaged."

Typically, a cumulative impact analysis of environmental and population indicators leads to an "equity score" that attempts to summarize which communities face the greatest cumulative harm, at least according to the included metrics. Some states have then demonstrated that ranking these equity scores is a good way to characterize which communities experience the most harm. For example, in California, the legislature

delegated the decision for determining exactly how to categorize equity scores to a specific agency, the Office of Environmental Health Hazard Assessment (OEHHA). The delegated agency, in turn, decided that the 25% of census tracts who had experienced the most cumulative harm, according to their equity score, would qualify as a disadvantaged community, along with "some communities with high pollution but low populations." When making this decision, OEHHA held "two separate and extensive public processes that included stakeholder engagement, public input, and legislative direction."

At the national level, delegating the decision of exactly which communities qualify as disadvantaged could give the administration the flexibility needed to make an informed policy decision once researchers see the data. With data in hand, EPA could hold critical outreach sessions, soliciting input on whether to rank communities nationally or regionally, whether to have a strict cutoff or a sliding scale of what qualifies as a disadvantaged community, and more. "Disadvantaged communities" may look very different across the country; EPA should be prepared to assess and incorporate regional variation in identification of disadvantaged communities.

6. Direct EPA to update the Map every three years.

Once the Map has been created and the disadvantaged communities identified, it cannot be left on a shelf. Equity Maps must be regularly updated to ensure they are capturing the most up-to-date information about local communities. These updates also allow for stakeholders to point out places where the Map has fallen short, as they have in California, which is now on version 3.0 of its Map. As mentioned above, the better the data, the better the Map. While the initial Map should not be held up in the pursuit of perfect data, the Map can be improved with ongoing feedback from stakeholders and as new or better data becomes available. EPA should consider funding data collectors in disadvantaged communities to ensure that accurate data is collected and to empower these communities in the Map-making process.

Moreover, as new versions of the Map are created, EPA should report on whether and how the cumulative impact borne by particular communities has changed since the previous iteration of the Map. The Map, at its core, is an accountability tool. The federal government must face the harms that discriminatory policies have caused and track whether current policies are remedying those harms or exacerbating them.

7. Ensure that the federal Equity Map supports, and does not hinder, state-level Mapping initiatives.

An EO or legislative mandate at the federal level should not preempt states from creating Equity Maps that rely on different data, or analyze that data differently, than the federal Map. Further, the EPA should partner with states that want to utilize the federal Equity Map and its underlying data to develop and implement their own programs. While state governments, particularly those that don't already have an Equity Mapping Program in place, may be able to adapt the federal Map for their own use in Screening state policy decisions, they should not be prevented from creating or maintaining an entirely separate tool should they wish to do so.

IV. How a Strengthened National Equity Map Could Be Used

With the creation of a National Equity Map, the federal government then can, and must, attach Screening policies to ensure that disadvantaged communities receive the support they need to prevent further harm from federal action and to appropriately direct needed new investments. To be sure, an Equity Map and accompanying Screen should not be the only mechanisms through which the federal government delivers assistance to communities bearing disparate impacts. For one, "disadvantaged communities" are but one type of community that experiences harm. Moreover, the Map identifies where harm has occurred, but doesn't fundamentally change the systems that cause that harm. Other remedies are necessary. But Screens that empower and uplift disadvantaged communities as identified by an Equity Mapping Program are a powerful first step in the direction of transformative climate justice.

In one example of an important Screening policy—mirroring state legislation—federal agencies could be directed to spend a certain percentage of future green[4] investments to support equitable development in communities with the greatest need, using the Equity Map to target the investments.[5] In California, the state government is required to spend 25% of climate investments from the Cap and Trade revenue in and for the benefit of the communities identified by statute or by their Mapping program. And in New York, disadvantaged communities are required to receive at least 35% of overall state spending on clean energy and energy efficiency programs, projects, or investment. The New York legislation sets a goal of achieving 40% investment—this 40% target was selected after looking at the percentage of New Yorkers that are people of color (41.7%), and the percentage of New York State households that earn less than $50,000 per year (43.7%).

[4] It is worth considering the exact language used to define the scope of investments that would be subject to an Equity Screen. For example, the New York legislation states that "thirty-five percent of the overall benefits of spending on clean energy and energy efficiency programs, projects or investments" should go to disadvantaged communities. Alternatively, the Build Back Better Clean Energy Plan put forward by a presidential campaign in Summer 2020 states that disadvantaged communities should "receive 40% of overall benefits of spending in the areas of clean energy and energy efficiency deployment; clean transit and transportation; affordable and sustainable housing; training and workforce development; remediation and reduction of legacy pollution; and development of critical clean water infrastructure."
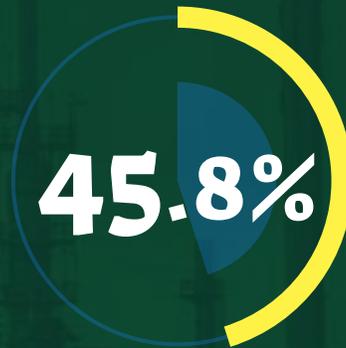[5] In addition to which types of spending would be subject to an Equity Screen, Equity Screen policy would also need to consider whether the money must be spent to "benefit" disadvantaged communities, or whether the money should be spent "in" disadvantaged communities. While New York and the Build Back Better Clean Energy Plan use language suggesting the investments merely need to "benefit" disadvantaged communities, California, after receiving feedback from these communities, shifted their requirement to invest "in" and "for the benefit of" disadvantaged communities.
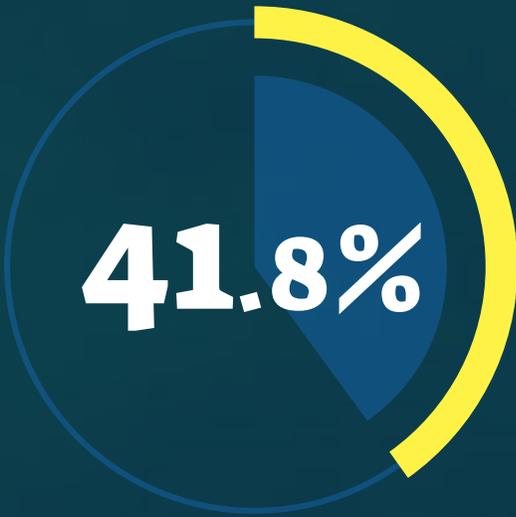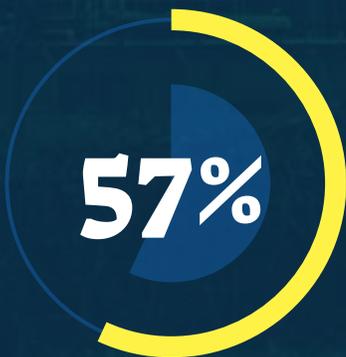
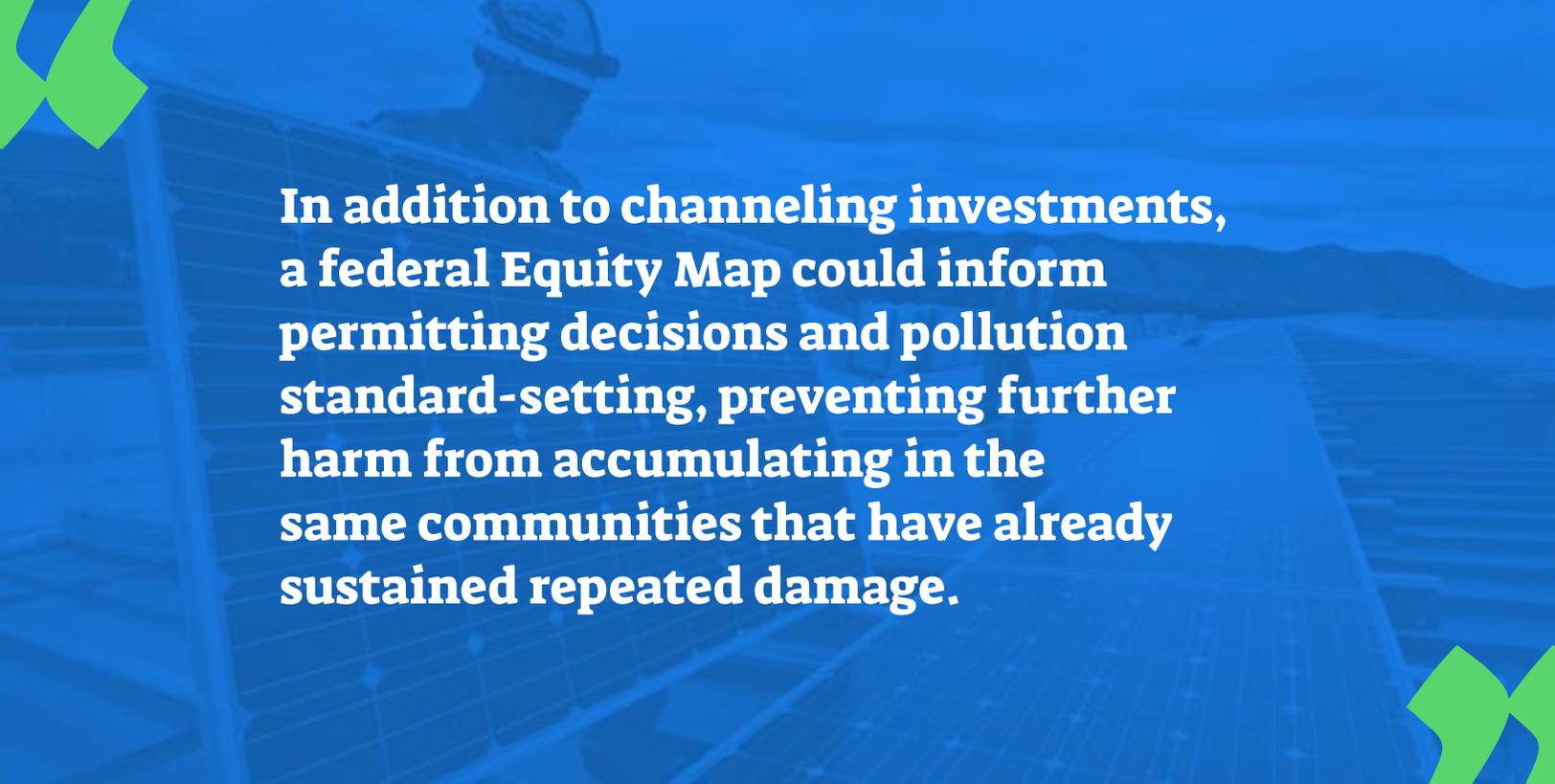**41.8%** of American Households Make **Less Than** **$50,000 A Year**

39.9% of Americans identify as non-white

45.8% of Americans live in counties with unhealthy ozone or particulate pollution

57% of voters support 40% of government green investments going to disadvantaged communities.

> In addition to channeling investments, a federal Equity Map could inform permitting decisions and pollution standard-setting, preventing further harm from accumulating in the same communities that have already sustained repeated damage.

The federal government should adopt this 40% number at the federal level for similar reasons—among them, 41.8% of American households make less than $50,000 a year, 39.9% of Americans identify as non-white, and 45.8% of Americans live in counties with unhealthy ozone or particulate pollution. Targeted investment is also popular with voters—in a Data for Progress poll of swing districts, 57% of voters support 40% of government green investments going to disadvantaged communities.

In addition to channeling investments, a federal Equity Map could inform permitting decisions and pollution standard-setting, preventing further harm from accumulating in the same communities that have already sustained repeated damage. Federal regulations could be assessed to determine their impact, positive or negative, on disadvantaged communities, as is proposed in Senator Kamala Harris's (D-CA) and Representative Alexandria Ocasio-Cortez's (D-NY) Climate Equity Act of 2019. Moreover, disadvantaged communities could also receive direct grants or tax breaks that help ease their financial burden. They could receive technical assistance and capacity building tools to strengthen political and social structures, and voices from these communities could be elevated in legislative or regulatory decision-making. All of this can start with an Equity Mapping Program that identifies the most overburdened communities.

Equity Maps can and must be accompanied by Screening policies that return power and economic opportunity to the communities that have already borne the burden of structural discrimination, been denied economic opportunity and investment, and shouldered the negative impacts of fossil-fuel driven growth without enjoying the benefits of that growth.

Conclusion

Equity Maps are a key first step in deep and structural empowerment and reinvestment of resources in communities marked by environmental injustice. These communities and their long-time residents have experienced historic disinvestment and pollution inequities as a result of a legacy and continuing history of environmental racism, a spatial manifestation of deeper national patterns of racial hierarchy and inequalities in wealth and power. Building an effective and accurate Equity Map will require investing in expanded technical expertise to develop robust data sets and centering community input to shape exactly how these data should be analyzed. In order to catalyze a just and inclusive process, Congress and the next President should learn from recent examples in the states and implement a reinvigorated nationwide Equity Mapping Program, linked to a robust policy Screening process, so that the most vulnerable communities can be identified, public health and environmental welfare can be protected, and justice can be served.

Acknowledgements