

*December 21, 2023*

# White House Environmental Justice Advisory Council Recommendations: Climate & Economic Justice Screening Tool (CEJST) Workgroup

December 21, 2023

Prepared by:

White House Environmental Justice  
Advisory Council Climate & Economic  
Justice Screening Tool Workgroup

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## Disclaimer

This report of recommendations has been written as part of the activities of the WHEJAC, a public advisory committee providing independent advice and recommendations on the issue of environmental justice to the Administrator, The Council of Environmental Quality (CEQ), White House Environmental Justice Interagency Council (IAC), and other officials of the White House. In addition, the materials, opinions, findings, recommendations, and conclusions expressed herein, and in any study or other source referenced herein, should not be construed as adopted or endorsed by any organization with which any Workgroup member is affiliated. This report has not been reviewed for approval by the EPA or CEQ, and hence, its contents and recommendations do not necessarily represent the views and the policies of the EPA or CEQ, nor of other agencies in the Executive Branch of the Federal government.

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December 21, 2023

The Honorable Ms. Brenda Mallory, Chair  
The Council on Environmental Quality  
Executive Office of the President  
Washington, DC 20500

Dear Chair Mallory:

We appreciate the responsiveness and hard work undertaken by the Council on Environmental Quality (CEQ) to revise the first online version of Climate and Economic Justice Screening Tool (CEJST) in response to our written feedback dated August 22, 2022.<sup>1</sup>

We reiterate the primary goal of the CEJST is to enable federal agencies to identify communities “that are marginalized, underserved, and overburdened by pollution” and to guide prioritization of investments for Justice40 initiatives to address environmental justice challenges across the United States. Our recommendations outlined below align with our charge to continue to provide advice and recommendations on the CEJST as CEQ revises the Tool in anticipation of its Version 2.0 release, and updates and improves the CEJST as new data become available.

Our charge put forth by CEQ for this round of feedback was as follows: “Provide advice and recommendations to inform future versions of the Climate and Economic Justice Screening Tool (CEJST) and ensure that the tool continues to accurately identify disadvantaged communities.” Our focus was on identifying: (1) relevant, publicly available national datasets that provide census tract-level information that could be incorporated into the CEJST; (2) potential improvements to CEJST methodology, including better reflection of cumulative burdens; (3) approaches for improving linguistic outreach; (4) ways to enhance the usability of the tool; and (5) other strategies that would support updates and further implementation.

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<sup>1</sup> See WHEJAC recommendation letter, dated August 2022, entitled “Recommendations for the Climate and Economic Justice Screening Tool,” accessed November 6, 2023, at [https://www.epa.gov/system/files/documents/2022-08/CEJST%20Recommendations%20Letter%208\\_4\\_2022%20Final.pdf](https://www.epa.gov/system/files/documents/2022-08/CEJST%20Recommendations%20Letter%208_4_2022%20Final.pdf).

December 21, 2023

Ensuring the accuracy of the CEJST and continually improving the Tool to characterize the cumulative impacts of environmental and social stressors and accurately identify disadvantaged and overburdened communities are critical to the successful and equitable implementation of Justice40. The following recommendations are based on our review of Version 1.0 of the CEJST as well as on feedback from our communities and constituents across the country.

As always, the WHEJAC welcomes an opportunity to discuss our second round of recommendations with you, CEQ staff members, and members of the White House Environmental Justice Interagency Council.

Sincerely,

Richard Moore, WHEJAC Co-Chair



Peggy M. Shepard, WHEJAC Co-Chair



cc:           Members of the WHEJAC  
              Michael S. Regan, EPA Administrator  
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              Corey Solow, Senior Advisor to the Chair, CEQ  
              Ryan Hathaway, Director, White House Environmental Justice Interagency Council  
              Audrie Washington, Designated Federal Officer, EPA



## Acronyms

CAFOs	Concentrated Animal Feeding Operations
CalEPA	California Environmental Protection Agency
CEJST	Climate and Economic Justice Screening Tool
CEQ	Council on Environmental Quality
CO <sub>2</sub>	Carbon dioxide
DAC	Disadvantaged Community
EPA	Environmental Protection Agency
HHS	Department of Health and Human Services
HOLC	Home Owners' Loan Corporation
HUD	Department of Housing and Urban Development
NCHS	National Center for Health Statistics
NJDEP	New Jersey Department of Environmental Protection
PM <sub>2.5</sub>	Fine particulate matter
USGS	United States Geological Survey
WHEJAC	White House Environmental Justice Advisory Council

## Glossary

Disadvantaged Community	Disadvantaged communities (DACs) are regions characterized by a convergence of challenges encompassing adverse public health outcomes, environmental pollution, susceptibility to climate change impacts, and specific socioeconomic indicators. These communities typically consist of a significant proportion of low- and moderate-income households. DACs grapple with the compounding effects of economic, health, and environmental disparities, making them a focal point for addressing equity and justice in various policy initiatives and interventions.
Environmental Justice	Environmental justice is the resolution to the harms caused by environmental violence and racism that have resulted in the disproportionate toxic burden on communities of color, communities experiencing low income, and fenceline communities throughout the U.S. and its territories. Environmental justice is the right and dignity of all people, regardless of race, class, gender, ability, national origin or immigration status, to a clean, healthy, and just environment where they live, subsist, work, go to school, and where they pray, and it is the fair treatment and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
Low-Income	Populations that are characterized by limited economic resources. The US Office of Management and Budget has designated the Census Bureau’s annual poverty measure as the official metric for program planning and analysis, although other definitions exist.
Tribe	Federally recognized Tribes include any Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe pursuant to the Federally Recognized Indian Tribe List Act of 1944, 25 U.S.C.479a. All uses of Tribe will be for federally recognized Tribes, unless specifically stated otherwise within the document.

## The Charge and Approach to the Response

In November 2022, the Climate and Economic Justice Screening Tool (CEJST) workgroup began discussion of additional recommendations to address the charge: “To provide advice and recommendations on the geospatial Climate and Economic Justice Screening Tool that is being developed by the Council on Environmental Quality to highlight disadvantaged communities.” This work is a continuation of the recommendations WHEJAC submitted to CEQ in August 2022 on the CEJST.

CEQ presented the progress they made on implementing WHEJAC’s 2022 recommendations on the CEJST at an in-person meeting in Alexandria, Virginia in November of that year. CEQ provided a summary of the following actions taken to update the tool:

- Added a display of federally-recognized Tribal lands
- Added nine additional datasets that show burdens
- Included low-income census tracts completely surrounded by disadvantaged communities
- Added missing income data
- Added an indicator for “historic underinvestment” based on digitized redlining maps created by the federal government’s Home Owners’ Loan Corporation (HOLC) between 1935 and 1940.
- Enhanced higher education metrics (subtracting student data before calculating)
- Added data for U.S. territories
- Added display of racial/ethnic demographic data for informational purposes
- Improved user interface
- Made the CEJST available in Spanish

The workgroup appreciates that CEQ has addressed some of the previous WHEJAC recommendations and hopes that CEQ will continue to implement their remaining recommendations for CEJST’s first version.<sup>2, 3</sup> To reflect the ongoing importance of the unimplemented recommendations from 2022, this report reiterates some previous recommendations CEQ must prioritize.

## Recommendations

### 1. Use a cumulative impacts metric to identify and designate disadvantaged communities.

Advancing environmental justice in policy and regulatory decision-making requires assessment and characterization of the cumulative impacts of environmental and social stressors that drive health disparities across racial, ethnic, and class lines. Although several state screening tools have valid methods for assessing cumulative impacts, the CEJST continues to lack such an approach. We strongly recommend that the CEJST address this critical data gap and derive a continuous cumulative impacts metric. Fortunately, CEQ would not have to reinvent the wheel to develop a cumulative impacts methodology for CEJST. Rather, existing, validated, and peer-reviewed approaches that are used in screening tools in states such as California, New Jersey, and Michigan, can be adapted for CEJST. New Jersey and California have developed well-vetted methodologies that are integrated with public policies and are used to guide regulatory decision-making including permitting decisions, the allocation of

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<sup>2</sup> Through these updates, CEQ responded to some of WHEJAC’s previous recommendations. These efforts include adding relevant indicators of Tribal lands, providing a more transparent and accessible interface, and integrating indicators of structural racism (including redlining).

<sup>3</sup> CEQ added redlining maps to CEJST to identify historic underinvestment in communities after the November 2022 public meeting presentation.

investments in pollution abatement,<sup>4</sup> and investment of resources to mitigate and adapt to climate change.<sup>5</sup>

In California, CalEPA's CalEnviroScreen derives its cumulative impacts metric from four components, including two Pollution Burden components and two Population Characteristics components. Each of these components contains a unique set of indicators (i.e., thirteen Pollution Burden indicators and eight Population Characteristics indicators for a total of 21 indicators across the components).<sup>6</sup> The main advantage of the CalEnviroScreen approach is that it transcends the yes/no methodology that is currently embedded in the CEJST to provide a continuous percentile measure of cumulative impacts based on a statewide distribution.<sup>7</sup> The CEJST could adapt such an approach and provide 1) a national comparison and 2) a comparison based score distributions within each of the U.S. EPA's ten regions. In California, the threshold for disadvantaged community (DAC) designation is exceedance of the 75<sup>th</sup> percentile of the score—CEJST could designate a similar threshold and allow for an exceedance of that threshold based on the national percentile OR the percentile within its U.S. EPA region.

New Jersey was the first political jurisdiction to mandate that an application for a pollution permit be evaluated, and if warranted, denied based on environmental justice and cumulative impacts concerns under certain circumstances.<sup>8, 9, 10</sup> The New Jersey Department of Environmental Protection (NJDEP) issued regulations in April 2023 as well as details on how to perform the EJ analysis.<sup>11</sup> The regulations identify 26 environmental and health stressors and creates a percentile ranking for each stressor.<sup>12</sup> For each non-overburdened census block group in the state, NJDEP has calculated the number of stressors that exceed the 50<sup>th</sup> percentile ranking and then used these numbers to produce the average number of stressors that exceed the 50<sup>th</sup> percentile for all non-overburdened block groups in the state. NJDEP also calculates the average number of stressors exceeding the 50<sup>th</sup> percentile for non-overburdened block groups in each county in the state. For each facility subject to the New Jersey EJ and cumulative impacts law that applies for a major pollution permit, the applicant must calculate the number of stressors that exceed the 50<sup>th</sup> percentile for its host block group. This number of stressors is compared to the lower of

<sup>4</sup> See California Climate Investments <https://www.caclimateinvestments.ca.gov/>.

<sup>5</sup> N.J. Env't Justice Law, ch. 92, N.J. Stat. Ann. § 13:1D-157 (2020); N.J. Admin. Code § 7:1C-1.1 (Lexis Advance through the New Jersey Register, Vol. 55 No. 16, August 21, 2023); CalEnviroScreen, California Office of Environmental Health Hazard Assessment, (Aug. 31, 2023, 11:35AM), <https://oehha.ca.gov/calenviroscreen>; MiEJScreen: Environmental Justice Screening Tool (DRAFT), Michigan Department of Environment, Great Lakes, and Energy, (Aug. 31, 2023, 11:35AM), <https://www.michigan.gov/egle/maps-data/miejscreen>; Ned Brooks, Minnesota Pollution Control Agency, Environmental Justice Framework (Sue Burns et al. eds., 2022), <https://www.pca.state.mn.us/sites/default/files/p-gen5-05.pdf>.

<sup>6</sup> Lauren Zeise and Jared Blumenfeld, *CalEnviroScreen 4.0*, Oct. 2021, <https://oehha.ca.gov/media/downloads/calenviroscreen/report/calenviroscreen40reportf2021.pdf/>.

<sup>7</sup> The CalEnviroScreen website explains how its cumulative impact score is calculated in detail at CalEnviroScreen accessed November 6, 2023, <https://oehha.ca.gov/calenviroscreen/scoring-model#:~:text=The%20CalEnviroScreen%204.0%20model%20is,and%20%20Population%20Characteristics%20components>.

<sup>8</sup> N.J. Environmental Justice Law, ch. 92, N.J. Stat. Ann. § 13:1D-160 (2020).

<sup>9</sup> N.J. Environmental Justice Law, ch. 92, N.J. Stat. Ann. § 13:1D-158 (2020).

<sup>10</sup> N.J. Environmental Justice Law, ch. 92, N.J. Stat. Ann. § 13:1D-160 (2020); N.J. Department of Environmental Protection, Guidance Document for Environmental Justice: New Rule N.J.A.C. 7-1C and Online Mapping Tool (2023), <https://dep.nj.gov/wp-content/uploads/ej/docs/njdep-ej-technical-guide.pdf>.

<sup>11</sup> N.J. Admin. Code § 7:1C-1.1 (Lexis Advance through the New Jersey Register, Vol. 55 No. 16, August 21, 2023).

<sup>12</sup> The stressors address the following areas: ground level ozone, fine particulate matter, cancer risk from diesel particulate matter, cancer risk from air toxics (excluding diesel particulate matter), non-cancer health impacts risk from air toxics, traffic-cars, light- and medium-duty trucks, traffic – heavy-duty trucks, railways, known contaminated sites, soil contamination deed restrictions, ground water classification exception areas/currently known extent restrictions, solid waste facilities, scrap metal facilities, surface water, combined sewer overflows, drinking water, potential lead exposure, lack of recreational open space, lack of tree canopy, impervious surface, flooding (urban land cover), emergency planning sites, NJPDES sites, unemployment, education. See *N.J. Dep't of Env't Protection, supra note 8*, at 9, 11, 13-60.

the average number of stressors in non-overburdened block groups that exceed the 50<sup>th</sup> percentile at the county and state levels. If the average number of stressors exceeding the 50<sup>th</sup> percentile in the host block group exceeds the lower number of average exceedances between the state and county levels, then NJDEP will determine that the permit application would contribute to elevated levels of stressors and either deny the permit application or subject it to conditions.<sup>13,14</sup> NJDEP developed this methodology with extensive consultation with a variety of stakeholder groups in the state and after much deliberation.<sup>15</sup> With some effort, it could be adapted for utilization by CEJST.

The National Academy of Sciences, Engineering, and Medicine is developing recommendations on cumulative impacts methodology.<sup>16</sup> Importantly, any cumulative impact methodology should be developed with significant input from and in consultation with communities.

## **2. Create pathways for communities to qualify as disadvantaged without necessarily satisfying the income metric.**

CEQ should consider providing a pathway for communities to qualify as “disadvantaged” without the income requirement. Such a pathway might be appropriate since these communities could be environmentally and socially burdened in ways that still justify DAC classification, even if income metrics do not designate them as disadvantaged. Currently, CEJST prevents communities from qualifying as disadvantaged if they are below the 65<sup>th</sup> percentile “low income” (defined as the percent of a census tract's population in households where household income is at or below 200 percent of the federal poverty level). The workforce development category is the one exception, as it allows a census tract to qualify as disadvantaged if it is above the 90<sup>th</sup> percentile for linguistic isolation, or low median income, or poverty, or unemployment and more than 10 percent of people 25 years old or older have less than a high school diploma. For all other environmental hazard categories, the census tract must not only satisfy the criteria for that particular environmental hazard metric, but also fall at or above the 65<sup>th</sup> percentile for low income. This strategy problematically eliminates those census tracts that may be affected by multiple environmental hazards, but that are not otherwise identified as disadvantaged due to this arbitrary income threshold. Several approaches could be used to prevent barring most communities from qualifying as disadvantaged if they don't satisfy the income metric, even if they satisfy multiple other metrics. One approach would be to eliminate this income threshold and instead integrate it as one of many metrics of cumulative impact (See Recommendation #1). Another approach would continue to allow communities to qualify as disadvantaged in the existing manner but to also provide other pathways of qualifying that did not necessarily involve satisfying the income metric.<sup>17</sup> These pathways would be in addition to the one current exception described above that allows qualifying as disadvantaged without meeting this metric. Many people interested in CEJST have commented that census tracts which qualify in multiple categories

<sup>13</sup> See NJ Regulations and New Jersey Department of Environmental Protection, Guidance Document For Environmental Justice, New Rule N.J.A.C. 7-1C And Online Mapping Tool (April 12, 2023), pp. 12.

<sup>14</sup> New Jersey Administrative Code, § 7:1C-3.3 (2023). <https://casetext.com/regulation/new-jersey-administrative-code/title-7-environmental-protection/chapter-1c-environmental-justice/subchapter-3-environmental-justice-impact-statement/section-71c-33-supplemental-information>.

<sup>15</sup> “Attend a Meeting,” New Jersey Department of Environmental Protection Office of Environmental Justice, (Aug. 31, 2023, 11:35AM), <https://dep.nj.gov/ej/meetings/#njdep-community-engagement-sessions>

<sup>16</sup> See National Academies of Sciences, Engineering and Medicine Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment: <https://www.nationalacademies.org/our-work/utilizing-advanced-environmental-health-and-geospatial-data-and-technologies-to-inform-community-investment>.

<sup>17</sup> It will remain important for the designation of DACs to support a redistributive J40 model that directs resources by and large to communities with greater economic needs (recognizing that defining DACs too broadly will result in a limited pool of resources being spread too thin).

but fail to meet the required income criteria are being unfairly restricted from a disadvantaged designation and are therefore not eligible for the benefits of the Justice40 program.

### 3. Include a contemporary structural racism indicator.

We appreciate that in response to our prior feedback, CEJST Version 1.0 now includes a measure of historical redlining to highlight those communities that endured targeted forms of racism in federal lending and investment policies from the 1930s by the Home Owners' Loan Corporation (HOLC.) As is well documented, historical redlining<sup>18</sup> continues to exert adverse environmental and health impacts today, including worse air quality,<sup>19</sup> higher likelihood of hosting oil and gas wells,<sup>20</sup> a lack of greenspace,<sup>21</sup> and higher heat island risks,<sup>22</sup> as well as elevated rates of cardiovascular disease,<sup>23</sup> asthma hospitalizations,<sup>24</sup> poor birth outcomes,<sup>25</sup> and other diseases.<sup>26</sup> While redlining is an important measure of the legacies of racism, this measure excludes many communities across the country that have similarly suffered from systemic racism, because the original HOLC maps from the 1930s focused on a subset of cities and do not include 1) many communities that did not exist during that period in the wake of the Great Depression and 2) communities that did exist but were not part of the HOLC's original mapping/neighborhood grading efforts.

Racial residential segregation has been significantly driven by discriminatory political, social, and economic forces,<sup>27</sup> coupled with patterns of industrialization and disinvestment that have segregated people of color into specific neighborhoods, including immigrant enclaves. Although these communities have developed strong foundations of socioeconomic resiliency and cultural vibrancy, they often experience some of the poorest indices of environmental quality. Accordingly, it is imperative that the CEJST complement the redlining indicator with a contemporary, and more inclusive measure of structural inequality, one that incorporates racialized disparities of extreme wealth and deprivation. The Index of

<sup>18</sup> See, for example, Robert K. Nelson, LaDale Winling, Richard Marciano, Nathan Connolly, et al., "Mapping Inequality," *American Panorama*, ed. Robert K. Nelson and Edward L. Ayers, accessed July 23, 2022.

<https://dsl.richmond.edu/panorama/redlining/-loc=5/39.1/-94.58&text=about/>.

<sup>19</sup> Haley M. Lane, Rachel Morello-Frosch, Julian D. Marshall, and Joshua S. Apte, "Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities," *Environmental Science & Technology Letters* 9, no. 4 (March 2022): 345–350. doi: [10.1021/acs.estlett.1c01012](https://doi.org/10.1021/acs.estlett.1c01012).

<sup>20</sup> Gonzalez, D.J.X., Nardone, A., Nguyen, A.V., Morello-Frosch, R, Casey JA (2023) Historic redlining and the siting of oil and gas wells in the United States. *J Expo Sci Environ Epidemiol* 33, 76–83 (2023). <https://doi.org/10.1038/s41370-022-00434-9>.

<sup>21</sup> Anthony Nardone, Kara E. Rudolph, Rachel Morello-Frosch, and Joan A. Casey, "Redlines and Greenspace: The Relationship between Historical Redlining and 2010 Greenspace across the United States," *Environmental Health Perspectives* 129, no. 1 (Jan. 2021): 17006. doi: [10.1289/EHP7495](https://doi.org/10.1289/EHP7495).

<sup>22</sup> Nadja Popovich and Christopher Flavelle, "Summer in the City Is Hot, But Some Neighborhoods Suffer More," *New York Times*, Aug. 9, 2019, accessed July 22. <https://www.nytimes.com/interactive/2019/08/09/climate/city-heat-islands.html/>.

<sup>23</sup> Mahasin S. Mujahid, Xing Gao, Loni P. Tabb, Colleen Morris, and Tené T. Lewis, "Historical Redlining and Cardiovascular Health: The Multi-Ethnic Study of Atherosclerosis," *Proceedings of the National Academy of Sciences* 118, no. 51 (Dec. 2021). doi: [10.1073/pnas.2110986118/](https://doi.org/10.1073/pnas.2110986118/).

<sup>24</sup> Anthony Nardone, Joan A Casey, Rachel Morello-Frosch, Mahasin Mujahid, John R Balmes, and Neeta Thakur, "Associations between Historical Residential Redlining and Current Age-Adjusted Rates of Emergency Department Visits Due to Asthma Across Eight Cities in California: An Ecological Study," *Lancet Planetary Health* 4, no. 1 (Jan. 2020): e24–e31. doi: [10.1016/S2542-5196\(19\)30241-4](https://doi.org/10.1016/S2542-5196(19)30241-4).

<sup>25</sup> Anthony L. Nardone, Joan A. Casey, Kara E. Rudolph, Deborah Karasek, Mahasin Mujahid, and Rachel Morello-Frosch, "Associations between Historical Redlining and Birth Outcomes from 2006 through 2015 in California," *PLOS One* 15, no. 8, (Aug. 2020): e1–e18. doi: [10.1371/journal.pone.0237241](https://doi.org/10.1371/journal.pone.0237241).

<sup>26</sup> Eun KyungLee, Gwendolyn Donley, Timothy H. Ciesielski, India Gill, Owusua Yamoah, Abigail Roche, Roberto Martinez, and Darcy A. Freedman, "Health Outcomes in Redlined Versus Non-Redlined Neighborhoods: A Systematic Review and Meta-Analysis," *Social Science & Medicine* 294, (Feb. 2022). doi: [10.1016/j.socscimed.2021.114696](https://doi.org/10.1016/j.socscimed.2021.114696).

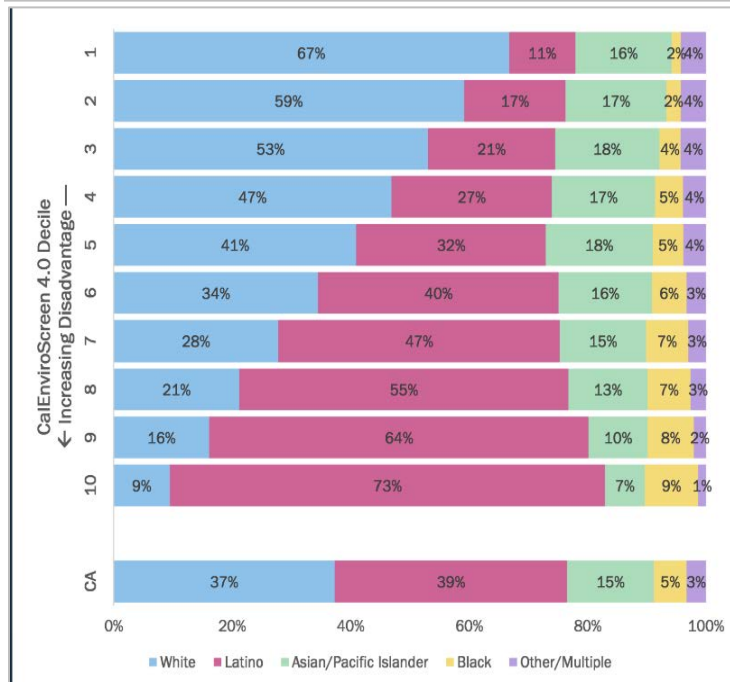
<sup>27</sup> Rachel Morello-Frosch and Russ Lopez, "The Riskscape and the Color Line: Examining the Role of Segregation in Environmental Health Disparities," *Environmental Research* 102, no. 2 (Oct. 2006): 181–96. doi: [10.1016/j.envres.2006.05.007](https://doi.org/10.1016/j.envres.2006.05.007).

Concentration at the Extremes measures the extent to which a census tract’s residents are concentrated into groups at the extremes of deprivation and privilege: a value of -1 means that 100 percent of the population is concentrated in the most deprived group, and a value of +1 means that 100 percent of the population is concentrated into the most privileged group.<sup>28</sup> This measure has been used successfully in environmental studies. For example, it has been used to characterize census tracts in terms of the concentrations of low-income people of color versus high-income white persons as related to air quality (levels of black carbon) and other health outcomes.<sup>29</sup>

4. Use CEJST to provide online assessments and visualizations of racial/ethnic as well as other demographic disparities in cumulative impacts and to inform the Scorecard with online, temporal equity evaluations of regulatory decision-making, investment flows, and Justice40 benefits by race/ethnicity and others measures of socioeconomic status.

**Figure 1: Racial Make-up of Each Decile of CalEnviroScreen Cumulative Impacts Score**

(Source: <https://arcg.is/1uXPnz> )



While the Supreme Court recently upended well-established equal protection law with its decision in *SFFA v. Harvard and SFFA v. UNC*, these cases have not overturned legal standards for compliance with federal civil rights in other areas. As such, agencies continue to have an obligation to evaluate their regulations, policies, and practices to ensure that they do not undermine equal protections and opportunities based on race or otherwise. Accordingly, while CEQ may be reluctant to explicitly include a

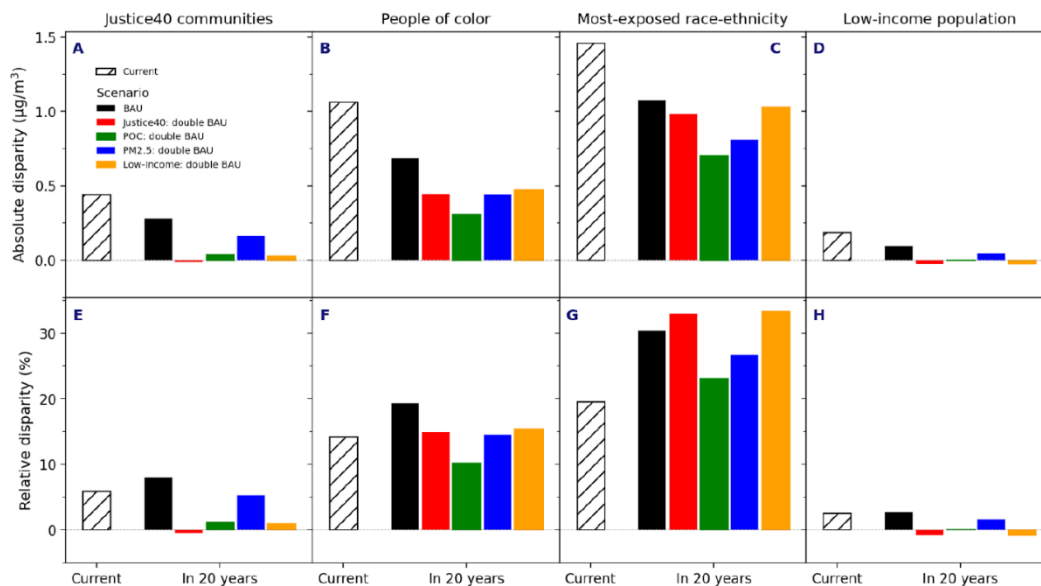
<sup>28</sup> Krieger N, Waterman PD, Spasojevic J, Li W, Maduro G, Van Wye G. Public Health Monitoring of Privilege and Deprivation With the Index of Concentration at the Extremes. *Am J Public Health*. 2016 Feb;106(2):256-63. doi: 10.2105/AJPH.2015.302955.

<sup>29</sup> Krieger N, Waterman PD, Gryparis A, Coull BA. Black carbon exposure, socioeconomic and racial/ethnic spatial polarization, and the Index of Concentration at the Extremes (ICE). *Health Place*. 2015 Jul;34:215-28. doi: 10.1016/j.healthplace.2015.05.008.

metric of racial/ethnic composition in the CEJST to identify DACs eligible for Justice40 programs and investments, CEJST should facilitate equity evaluations that include race/ethnicity to assess the funding flows and benefits of Justice40. In California, Proposition 209, which was passed by voters in 1996,<sup>30</sup> prohibits state and local government affirmative action programs in the areas of public employment, public education, and public contracting. This law has precluded the integration of a race/ethnicity variable within CalEnviroScreen’s Cumulative Impact score because numerous agencies and programs, including California’s Climate Investments,<sup>31</sup> rely on CalEnviroScreen to direct investment proceeds to DACs in the state. Nevertheless, the California Environmental Protection Agency (CalEPA)’s Office of Environmental Health Hazard Assessment, which developed CalEnviroScreen, regularly undertakes equity assessments of racial/ethnic disparities of cumulative impacts.<sup>32</sup> These equity assessments facilitate the temporal tracking of diverse regulatory and program initiatives in terms of their progress in achieving environmental justice goals. CEJST could adapt CalEPA’s approach to elevating racial/ethnic equity analyses of cumulative impacts in ways that enable end-users to visualize and better understand issues related to environmental (in)justice and racial equity across the nation and within US EPA regions. Figure 1 provides one example of such visualizations undertaken by CalEnviroScreen.

**Figure 2: Absolute and Relative PM2.5 disparities changes in 20 years for alternative doubling emission-reduction scenarios.**

(Source: science.org/doi/10.1126/science.adg9931)



CEJST should also be leveraged to inform the Scorecard by facilitating equity evaluations of Justice40 investment flows and their environmental benefits by race/ethnicity and other socioeconomic indicators. In addition, CEJST should incorporate the use of race/ethnicity to assess and project the extent to which programs and regulations (e.g., how different approaches to targeting emission reductions might affect

<sup>30</sup> Proposition 209: Prohibition Against Discrimination or Preferential Treatment by State and Other Public Entities, Accessed November 7, 2023, [https://lao.ca.gov/ballot/1996/prop209\\_11\\_1996.html](https://lao.ca.gov/ballot/1996/prop209_11_1996.html).

<sup>31</sup> See California Climate Investments Program. Accessed November 7, 2023, <https://calepa.ca.gov/EnvJustice/GHGInvest/>.

<sup>32</sup> For examples, see CalEnviroScreen 4.0 and Race/Ethnicity Analysis, Office of Environmental Health Hazard Assessment, October 2021, <https://arccg.is/luXPnz> and Pollution and Prejudice: Redlining and Environmental Injustice in California, CalEPA, August 16, 2021, <https://storymaps.arcgis.com/stories/f167b251809c43778a2f9f040f43d2f5>, both accessed November 7, 2023.



racialized disparities in air pollution exposures). Indeed, a recent analysis of future 20-year emissions reduction scenarios for fine particulate matter (PM<sub>2.5</sub>), demonstrated that although overall air quality would improve for all racial and ethnic groups, not considering the racial and ethnic make-up of communities with the highest pollution burdens can enable the relative and absolute racial inequities in air quality to persist and in some scenarios, worsen (**Figure 2**).<sup>33, 34</sup> CEJST could bolster the rigor and relevance of the Scorecard to characterize and quantify how existing and proposed programs, investments, regulations, and decision-making tools would affect environmental justice outcomes and community benefits, including reducing exposure disparities by race-ethnicity. Such regular assessments are critical to the timely and transparent assessment of the extent to which the environmental justice goals of Justice40 are in fact being met.

In the next sections, we strongly reiterate recommendations that we first presented as part of our recommendations document sent to CEQ on August 16, 2022. We acknowledge that CEQ has incorporated some of our previous recommendations. Because CEQ demonstrated their receptiveness to our early recommendations, we hope they will be receptive to the still important recommendations we highlight below.

#### **5. Integrate metrics of physical and social infrastructure.**

A diverse set of CEJST infrastructure measures should guide Justice40 infrastructure investments. We recommend developing a more robust infrastructure category that includes indicators related to transportation infrastructure and affordability (data could be secured from the Department of Transportation); digital infrastructure, such as internet and broadband access; banking services; food security (available from data sources such as PolicyMap<sup>35</sup> and Simply Analytics<sup>36</sup>); and affordable housing (data could be acquired from Department of Housing and Urban Development (HUD) and/or the National Housing Trust). Access to clean energy infrastructure data could be acquired from the Department of Energy, given its internal assessments related to meeting Justice40 goals. In addition, the CEJST should assess the availability of data to generate metrics that would identify severely deprived areas where communities are living in housing that lacks electricity, plumbing, or sewerage. These issues are especially important in rural areas, unincorporated areas, tribal lands, and *colonias* along the US-Mexico border; HUD may have such data. CEQ should also assess whether national data sources are available to integrate industrial zoning information.

#### **6. Continue to work with the Department of Health and Human Services (HHS) and the National Center for Health Statistics (NCHS) to include metrics of perinatal and maternal health outcomes.**

<sup>33</sup> Wang Y, Apte JA, Hill JD, Ivey CE, Johnson D, Min E, Morello-Frosch R, Patterson R, Robinson A, Tessum CW, Marshall J, (2023) Air quality policy should quantify effects on disparities. *Science* 381 (6655) 272-74.

<sup>34</sup> In the “business as usual” (BAU) scenario, historical rates of emissions and emission reductions by PM<sub>2.5</sub> component and sector of economy) are continued into the future, using linear extrapolation, as though the Justice40 initiative had not been implemented. Justice 40 double BAU assumes a doubling of historical rates of emissions reductions (e.g., through upgrading, modernizing, or retrofitting older equipment; more stringent monitoring and enforcement of existing requirements; efficiency improvements; pollution-control devices; and granting of fewer permits for new sources); the other three scenarios are to define locations nationally where emission-reductions are doubled “POC: double BAU” represents enhanced emission-reductions using percentage of people of color population; “PM<sub>2.5</sub>: double BAU” represents enhanced emission reductions using PM<sub>2.5</sub> concentration; “low-income: double BAU” represents enhanced emission reductions using percentage of low-income population. Each of the three scenarios define the Census Tract with top 30% scores for the indicators as enhanced emission-reductions. (See: Wang et al, (2023) DOI: 10.1126/science.adg9931 for more details.

<sup>35</sup> <https://www.policymap.com/features/access-data/>.

<sup>36</sup> <https://simplyanalytics.com/>.

While we understand that current data on perinatal and maternal health outcomes are not currently consistently available at the census tract level for all states across the country, we continue to encourage CEQ to work with HHS and NCHS in acquiring this important data. CEQ should acquire data for outcomes including low birthweight, small-for-gestational age, preterm birth, and severe maternal morbidities, all of which have persistent racial and economic disparities that are driven by social and environmental factors. In addition, as we previously recommended, we continue to believe that an indicator of a community's health insurance status could be developed by using the percentage of people receiving Medicaid compared with its total Medicaid-eligible population. This metric can be obtained from the U.S. Census Bureau or from WHEJAC members who have used this national level metric for understanding structural drivers of adverse perinatal health outcomes through the National Institutes of Health Environmental Children's Health Outcomes Program.

### **7. Expand environmental hazard indicators to include fossil fuel infrastructure and concentrated animal feeding operations (CAFOs).**

We continue to encourage CEQ to include a wider array of environmental hazards in the CEJST that have been the focus of environmental justice concern and advocacy. Key among these environmental hazards are oil and gas infrastructure and extraction activities, including unconventional methods (such as hydraulic fracturing) that pose significant environmental justice threats<sup>37</sup> in rural and urban communities throughout the country. Enverus is a private service that aggregates and continually updates data on oil and gas development activity from operators and state agencies across the United States that is also made available for research purposes.<sup>38</sup> Additional sources of fossil fuel infrastructure data, that include petroleum refineries, petroleum product terminals and crude oil rail terminals, can be obtained from the EIA Energy Atlas<sup>39</sup> and USACE data set (petroleum ports).<sup>40</sup> In addition, CEJST needs to include data on CAFOs from EPA's Facility Registry Service database, as animal production and rendering facilities are of great relevance for community health and environmental justice,<sup>41</sup> particularly for rural communities. Although these data are incomplete, this information is viable to include in the CEJST and CEQ can collaborate with EPA to push for better data on the location, size, and types of CAFOs across the country. Finally, the CEJST should track the location and development of carbon management projects, in particular Carbon Capture, Utilization and Storage projects that involve removal of carbon dioxide (CO<sub>2</sub>) emissions directly from the atmosphere; CO<sub>2</sub> mitigation and capture from large point sources such as power plants, refineries, and other industrial facilities; and carbon storage technologies deployed as a part of enhanced oil recovery. It is also important for the screening tool to track which power plants are co-firing hydrogen as a fuel source.

### **8. Add indicators of drinking water quality and sanitation.**

While there is a paucity of high-quality spatial data on community and public water systems, the Environmental Policy Innovation Center has created the first comprehensive national dataset of drinking

<sup>37</sup> David J. X. Gonzalez, Anthony Nardone, Andrew V. Nguyen, Rachel Morello-Frosch, and Joan A. Casey, Historic Redlining and the Siting of Oil And Gas Wells in the United States, *Journal of Exposure Science and Environmental Epidemiology* (April 2022). doi: [10.1038/s41370-022-00434-9](https://doi.org/10.1038/s41370-022-00434-9).

<sup>38</sup> <https://www.enverus.com/>

<sup>39</sup> Energy Information Administration (EIA) Energy Atlas: <https://atlas.eia.gov/pages/energy-maps>

<sup>40</sup> US Army Corp of Engineers (USACE): [https://geospatial-usace.opendata.arcgis.com/datasets/8eb8a75c67e84c22af7acf4268692052\\_0/explore](https://geospatial-usace.opendata.arcgis.com/datasets/8eb8a75c67e84c22af7acf4268692052_0/explore)

<sup>41</sup> Ji-Young Son, Rebecca L. Muenich, Danica Schaffer-Smith, Marie Lynn Miranda, and Michelle L. Bell, "Distribution of Environmental Justice Metrics for Exposure to CAFOs in North Carolina, USA," *Environmental Research* 195, (April 2021): 110862. doi: [10.1016/j.envres.2021.110862](https://doi.org/10.1016/j.envres.2021.110862).

water service area boundaries for community water systems.<sup>42</sup> We encourage CEQ to work with EPA to link these boundaries with the federal Safe Drinking Water Information System data to enable the development of a national drinking water layer that could be added to the CEJST. These boundaries could also be used to estimate areas where communities are not likely to be served by community water systems and that are therefore reliant upon domestic wells. A method to estimate the location of these domestic well areas has been used in California<sup>43</sup> and could be scaled up nationally through a collaboration between CEQ, EPA, and researchers working on water justice projects. To our knowledge, there are currently no national data available that identify where communities lack access to sewerage and sanitation services, which is a significant environmental justice challenge in both urban and rural areas. We therefore strongly recommend that CEQ collaborate with EPA, HUD, and the Department of Agriculture to address this critically important data gap.

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<sup>42</sup> See <https://www.policyinnovation.org/technology/water-utility-service-area-boundaries/>.

<sup>43</sup> Clare Pace, Carolina Balazs, Komal Bangia, Nicholas Depsky, Adriana Renteria, Rachel Morello-Frosch, and Lara J. Cushing, “Inequities in Drinking Water Quality Among Domestic Well Communities and Community Water Systems, California, 2011–2019,” *American Journal of Public Health* 112, no. 1 (Dec. 2021): 88–97, [doi: 10.2105/AJPH.2021.306561](https://doi.org/10.2105/AJPH.2021.306561).

## 9. Enhance the climate change vulnerability category.

Current indicators used to assess climate change vulnerability in the CEJST are limited to expected agricultural loss, building loss rate, and expected population loss rate. However, there are additional high-quality national data related to other climate change impacts that would make this category more robust. Other elements of climate change vulnerability that are critically relevant to environmental justice include heat island risks,<sup>44</sup> which disparately affect environmental justice communities. Studies show, for example, that the adverse perinatal effects of heat waves combined with poor air quality can disproportionately impact people of color.<sup>45</sup> Metrics could assess trends in the number of extreme warm degree days or nights (e.g., number of days that daily or nightly dry-bulb temperatures exceed the historical [1971–2000] summertime 99th percentile), neighborhood green space,<sup>46</sup> tree canopy,<sup>47</sup> and impervious surface (using USGS National Land Cover Database<sup>48</sup> or Normalized Difference Vegetation Index – Enhanced Vegetation Index data).<sup>49</sup> Additionally, metrics related to flooding due to sea-level rise in low-lying coastal areas,<sup>50</sup> and to extreme weather events in non-coastal flood-prone areas,<sup>51</sup> including those with hazardous sites, should be added to the CEJST given current and projected threats to potentially hazardous facilities and legacy clean-up sites that are disproportionately located in environmental justice communities.<sup>52, 53</sup>

## 10. Integrate measures of sensitive populations and receptors.

We recommend that CEJST include metrics of sensitive receptors of critical relevance for environmental justice, starting with K-12 schools (for which data are available from the Department of Education) and prisons (data are available from the Department of Justice and the Vera Institute<sup>54</sup>).<sup>55, 56</sup>

<sup>44</sup> Bill M. Jesdale, Rachel Morello-Frosch, and Lara Cushing, “The Racial/Ethnic Distribution of Heat Risk–Related Land Cover in Relation to Residential Segregation,” *Environmental Health Perspectives* 121, no. 7 (July 2013): 811–817. [doi: 10.1289/ehp.1205919](https://doi.org/10.1289/ehp.1205919).

<sup>45</sup> Bruce Bekkar, Susan Pacheco, Rupa Basu, and Nathaniel DeNicola, “Association of Air Pollution and Heat Exposure With Preterm Birth, Low Birth Weight, and Stillbirth in the US: A Systematic Review,” *JAMA Network Open* 3, no. 6 (June 2020): e208243. [doi:10.1001/jamanetworkopen.2020.8243](https://doi.org/10.1001/jamanetworkopen.2020.8243).

<sup>46</sup> Nardone, et al. “Redlines and Greenspace.” [doi: 10.1289/EHP7495](https://doi.org/10.1289/EHP7495).

<sup>47</sup> American Forests, Tree Equity Score, accessed July 23, 2022. <https://treeequityscore.org/>.

<sup>48</sup> <https://www.mrlc.gov/data/nlcd-2019-land-cover-conus/>.

<sup>49</sup> <https://modis.gsfc.nasa.gov/data/dataproduct/mod13.php/>.

<sup>50</sup> See for example, Climate Central’s Toxic Tides maps <https://www.climatecentral.org/press-release-toxic-tides>. As well as the following paper on the methods to develop this data: Cushing LJ, Ju Y, Kulp S, Depsky N, Karasaki S, Jaeger J, Raval A, Strauss B, Morello-Frosch R (2023) Toxic tides and environmental injustice: Social vulnerability to sea level rise and flooding of hazardous sites in coastal California. *Environmental Science & Technology* <https://doi.org/10.1021/acs.est.2c07481>.

<sup>51</sup> See for example, First Street Foundation <https://firststreet.org/data-access/> and Fathom <https://www.fathom.global/> for sources of this data.

<sup>52</sup> Climate Central, Surging Seas Maps and Tools, accessed July 23, 2022. <https://sealevel.climatecentral.org/maps/>.

<sup>53</sup> See Toxic Tides: Sea Level Rise, Hazardous Sites, and Environmental Justice in California, accessed July 23, 2022.

<https://sites.google.com/berkeley.edu/toxictides/home/>.

<sup>54</sup> Vera Institute: <https://www.vera.org/solutions-research>

<sup>55</sup> Manuel Pastor, Jr., James L. Sadd, and Rachel Morello-Frosch, “Who’s Minding the Kids? Pollution, Public Schools, and Environmental Justice in Los Angeles,” *Social Science Quarterly* 83, no. 1 (March 2002): 263–280. [doi: 10.1111/1540-6237.00082](https://doi.org/10.1111/1540-6237.00082).

<sup>56</sup> Adam Mahoney, “America’s Biggest Jails are Frontline Environmental Justice Communities,” *Grist*, April 15, 2021, accessed July 23, 2022. <https://grist.org/equity/toxic-jails-environmental-justice-los-angeles-new-york-chicago/>.