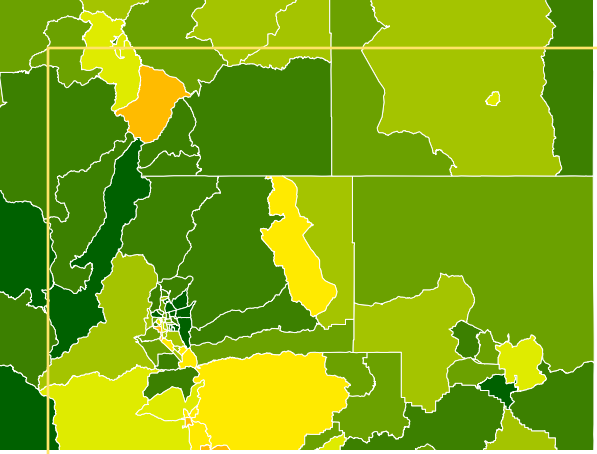
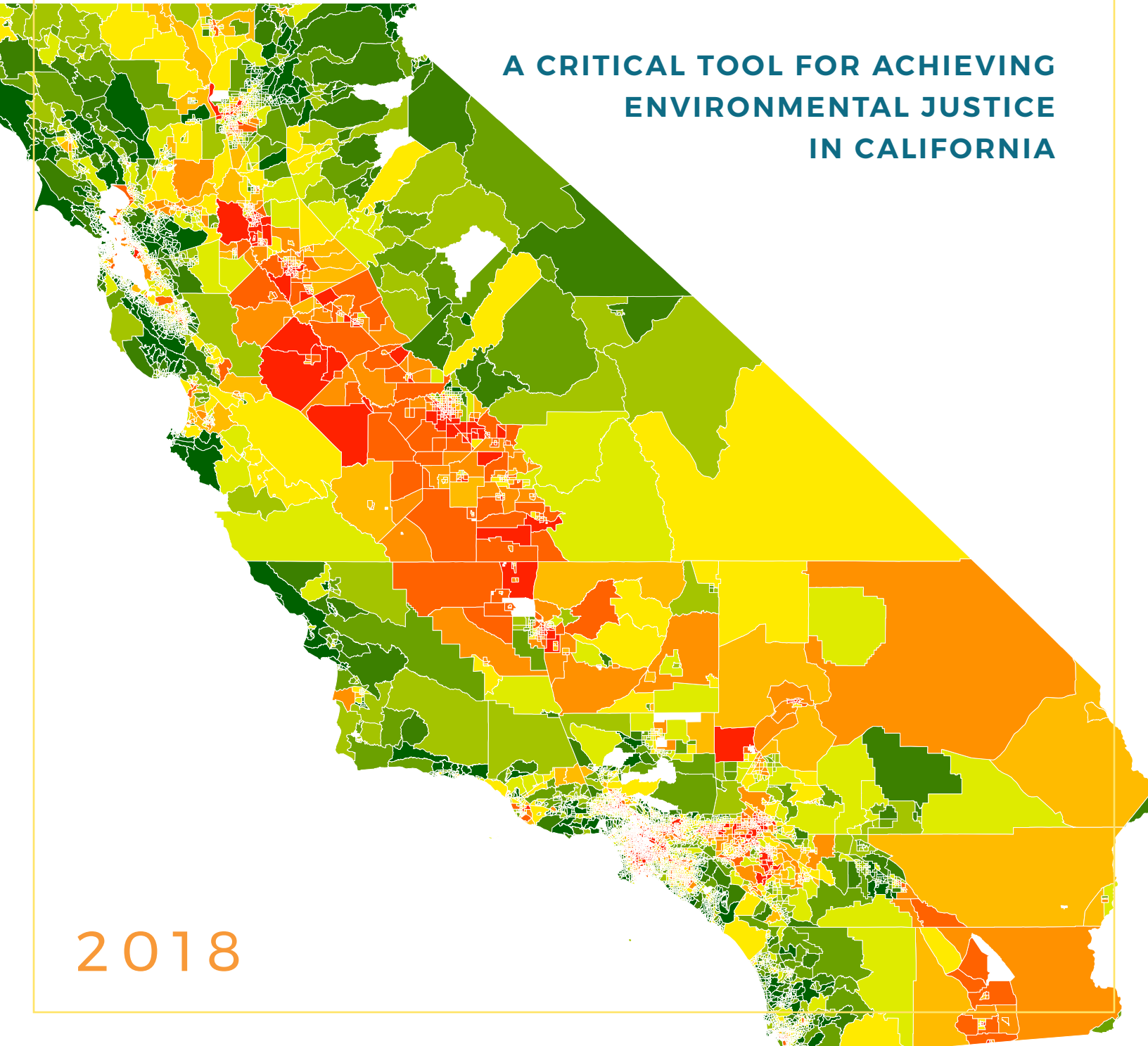


CALIFORNIA
ENVIRONMENTAL
JUSTICE ALLIANCE

CALENVIROSCREEN

A CRITICAL TOOL FOR ACHIEVING ENVIRONMENTAL JUSTICE IN CALIFORNIA



2018

CalEnviroScreen: A Critical Tool for Achieving Environmental Justice in California

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ABOUT

The California Environmental Justice Alliance is a statewide, community-led alliance that works to achieve environmental justice by advancing policy solutions. We unite the powerful local organizing of our members in the communities most impacted by environmental hazards — low-income communities and communities of color — to create comprehensive opportunities for change at a statewide level. We build the power of communities across California to create policies that will alleviate poverty and pollution. Together, we are growing the statewide movement for environmental health and social justice. www.caleja.org

E / J Solutions provides comprehensive environmental justice consulting to enable informed decision-making and equitable outcomes for all Californians. www.environmentaljusticesolutions.com

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EXECUTIVE SUMMARY

In California, low-income residents, communities of color, immigrants, and indigenous communities experience a disproportionate burden of environmental pollution and related health problems. These inequitable impacts are caused by living in close proximity to multiple environmental health hazards.[1] Meanwhile, socioeconomic vulnerabilities such as pre-existing health problems, disenfranchisement, poverty, and an inability to afford proper medical care can worsen the negative health impacts of pollution exposure.

In response to these challenges, environmental justice (EJ) groups have pushed state and national agencies to develop more comprehensive approaches for addressing the full range of environmental and socioeconomic burdens that communities face. Through the groundbreaking **California Communities Environmental Health Screening Tool (CalEnviroScreen or CES)** developed by the California Environmental Protection Agency (CalEPA), California has developed a unique tool to target local, state, and regional policies to protect our hardest-hit communities. While much progress still needs to be made, numerous laws, policies, and programs now include explicit commitments or set-asides for these environmentally impacted areas, based on the use of CalEnviroScreen. For examples of how CalEnviroScreen is being used within state and local policy, please see *Table 1, p. 7.*

CalEnviroScreen 3.0 (CES 3.0) is a place-based cumulative impact screening methodology that uses 20 indicators to provide a statewide ranking of California's 8,000 census tracts. In this context, a "**cumulative impact**" assessment examines "multiple chemicals, multiple sources, public health and environmental effects, and characteristics of the population that influence health outcomes."[2] Areas with high concentrations of these factors have a greater "cumulative impact."[3]

CalEnviroScreen is an important departure from current environmental policymaking in two ways. First, although communities usually experience pollution from multiple sources, most environmental statutes and regulations address each source from an individual standpoint. CalEnviroScreen breaks free from this single-issue framework by assessing

multiple, combined environmental stressors. Second, CalEnviroScreen considers socioeconomic and health-related vulnerabilities that can aggravate pollution exposure, which are not often included in environmental decision-making. As a result, CES 3.0 provides a scientific assessment that corroborates the lived experience of many Californians. Some communities are exposed to more environmental problems and are more vulnerable to the effects of pollution than others, and these burdens tend to be unfairly distributed along race and class lines.

CES 3.0 provides one clear, accessible, and science-based method for identifying overburdened environmental justice communities or **disadvantaged communities (DACs)** and the particular challenges that they face. It has reshaped what is possible in state and local policymaking. It enables decision-makers to craft and implement policies that target our state's most vulnerable communities, such as programs that direct improvements and investments to under-resourced neighborhoods, and regulations that minimize or avoid harms against already overburdened communities.

Although CalEnviroScreen has received widespread attention for its use in allocation of Greenhouse Gas Reduction Funds, it was developed to help achieve a much broader range of environmental justice goals. It is particularly well suited for strategies that reduce and/or avoid pollution. CalEnviroScreen is readily applicable to land use and zoning decisions, permitting processes in overburdened areas, and regulatory enforcement actions. Decision-makers can utilize its data to reverse uneven environmental enforcement practices, protect sensitive populations, prevent the overconcentration of polluting facilities in vulnerable areas, and direct much-needed capital and public service improvements to under-resourced neighborhoods. The tool is versatile and can also be modified or customized to meet the needs of different geographies, issues, or programs.

In addition, given the nexus between environmental, public health, and socioeconomic issues, CalEnviroScreen is applicable to focus areas that intersect with environmental concerns, such as housing, transportation, and public health. Depending on the public policy, however, other tools may be more appropriate for identifying context-specific burdens and forms of disadvantage. Tools such as the Environmental Justice Screening Method or the California Healthy Places Index can be used in tandem with or instead of CES to inform comprehensive state, regional, and local policies.

To advance the goals of environmental justice and social equity, CEJA recommends the following uses of CalEnviroScreen at the state, regional, and local levels:

- Use CalEnviroScreen to inform the development of environmental laws, policies, and programs, including enforcement actions.
- Integrate CES into land use planning, from General Plans and community plans to siting and permitting decisions.
- Target critical investments and improvements such as accessible affordable housing and infrastructure into underserved and highly impacted areas.
- Use CES to determine how certain programs will meet the needs of disadvantaged communities, provide meaningful and concrete benefits, and avoid producing harms.
- Utilize CalEnviroScreen maps and data to strengthen local grassroots advocacy efforts for EJ.

By adopting CalEnviroScreen, an effective cumulative impact screening tool, California continues to serve as a national leader in environmental policy. CEJA hopes that the state of California will continue to expand its commitment to environmental justice by using CES in innovative ways to address long-standing environmental inequalities. In doing so, we can improve the overall quality of life for communities of color and low-income residents, while creating a healthier California for all.

TABLE 1: CALENVIROSCREEN USES AT THE STATE AND LOCAL LEVELS

STATEWIDE LAWS AND PROGRAMS	
Agency or Department	**CalEnviroScreen Policies and Applications**
California Air Resources Board (CARB)	**SB 535 (De León, 2012)** allocates a minimum of 25% of the Greenhouse Gas Reduction Fund (GGRF) to benefit disadvantaged communities. CalEPA designated the top 25% highest scoring census tracts in CalEnviroScreen as disadvantaged communities (DACs). **AB 1550 (Gomez, 2016)** amended SB 535 to require all GGRF investments that benefit DACs to also be located within those communities. The law also requires that an additional 10% of the fund be dedicated to low-income households and communities, of which 5% is reserved for low-income households and communities living within a half-mile of a designated DAC.
California Department of Toxic Substances Control (DTSC)	**SB 673 (Lara, 2015)** directs the Department of Toxic Substances Control (DTSC) to include criteria such as cumulative impact and neighborhood vulnerability when issuing or renewing facility permits. The law provides the DTSC with an opportunity to use tools such as CalEnviroScreen when making decisions on hazardous waste permitting.
California Department of Transportation (CalTrans)	The **Active Transportation Program (ATP)** aims to enhance public health and advance California's climate goals by increasing safety and mobility for non-motorized active transportation such as biking and walking. Twenty-five percent of program funds are set aside for ATP projects in "disadvantaged communities" (defined as census tracts within the top 25% of CES scores along with several other options), while an additional 2% is set aside to fund active transportation planning in DACs.
California Energy Commission (CEC)	**AB 523 (Reyes, 2017)** allocates at least 25% of the Electric Program Investment Charge (EPIC) fund to support technology demonstration and deployment projects located in and benefiting "disadvantaged communities," and dedicates at least 10% of the fund to activities located in and benefiting "low-income" communities as defined by AB 1550.
California Environmental Protection Agency (CalEPA)	CalEPA's **Environmental Justice Compliance and Enforcement Working Group** has engaged in two cross-media enforcement initiatives that target communities with the greatest burdens in the cities of Los Angeles and Fresno. The selected neighborhoods are located in census tracts that are in the top 5% of CES scores.
California Public Utilities Commission (CPUC)	**SB 43 (Wolk, 2013)**, the Green Tariff Shared Renewables program, enables utility customers to meet their energy generation needs through offsite generation of renewable energy projects. The program requires 100 MW of renewable energy projects to be sited in the top 20% of CES scores based on each investor-owned utility (IOU) service territory. **AB 693 (Eggman, 2015)** allocates $100 million per year for 10 years to fund solar installations on multifamily affordable housing. To qualify, a multifamily affordable housing property must be: (1) located in a DAC as defined by SB 535 using the most recent version of CES; or (2) have at least 80% of tenants with incomes at or below 60% of area median income (AMI).

California Strategic Growth Council (SGC)	The **Transformative Climate Communities (TCC)** program, created by **AB 2722 (Burke, 2016)**, is a GGRF-funded program that supports innovative, comprehensive, and community-led plans that reduce pollution and achieve multiple co-benefits at the neighborhood level. TCC requires that at least 51% of a proposed plan's geographic area overlaps with census tracts in the top 5% highest CES 3.0 scores. The remaining 49% or less of the project's geographic area must overlap with either a disadvantaged community or a low-income community as defined by AB 1550.
Governor's Office of Planning and Research (OPR)	**SB 1000 (Leyva, 2016)** requires cities and counties with disadvantaged communities to incorporate environmental justice goals, policies, and objectives into their General Plan as a standalone EJ element or integrated throughout. Defines a "disadvantaged community" as: (1) a census tract in the top 25% of CalEnviroScreen scores; or (2) a "low-income area that is disproportionately affected by environmental pollution and other hazards."
LOCAL LEVEL PLANS	
Agency or Department	**CalEnviroScreen Policies and Applications**
City of Los Angeles	**Mobility Plan 2035** is a city of Los Angeles General Plan element that will employ CalEnviroScreen data and other data sets to prioritize transportation decisions that promote safety, equity, environmental justice, public health, social and/or economic benefits, and language and physical access.
City of San Diego	The city of San Diego's **Climate Action Plan (CAP)** uses CalEnviroScreen to identity the most impacted communities to target for mitigation and investments from the city's Capital Improvement Program. The Climate Action Plan defines "underserved communities" as those in the top 30% of CES scores that may be ranked locally, regionally, or statewide.

PHOTO COURTESY OF ENVIRONMENTAL HEALTH COALITION.

I. INTRODUCTION

California law defines **environmental justice (EJ)** as: "The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies." [4] Fair treatment means that no group of people, including those of different racial, ethnic, or socio-economic groups, may be disproportionately harmed by the negative consequences of our environmental, political, and economic decisions. [5] Unfortunately, combined with decades of systemic disinvestment and disenfranchisement, low-income communities and communities of color continue to experience a disproportionate share of pollution burdens, and related health issues.

The EJ movement has often defined the environment as the places where people "live, work, pray, play, and learn," [6] underscoring the reality that the decisions we make about the natural and built environments impact nearly every aspect of our daily lives. For overburdened communities, referred to as "environmental justice" or **"disadvantaged communities" (DACs)**, fair treatment means reversing decades of unjust policymaking in order to achieve equitable outcomes. [7] (Although the term "disadvantaged community" is not a preferred term of identification by EJ communities, it is commonly used in state policy and will thus be used throughout this paper.)

The **California Communities Environmental Health Screening Tool (CalEnviroScreen or CES)** is a scientific mapping tool used to identify the California communities that are "most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects." [8] The Office of Environmental Health Hazard Assessment (OEHHA), under the direction of the California Environmental Protection Agency (CalEPA), first released this cutting-edge tool in 2013 after more than a decade of research and environmental justice advocacy. Although there are now several cumulative impact tools available for use, **CalEnviroScreen 3.0 (CES 3.0)**, last updated in January 2017, remains unique as the only cumulative impact tool in the nation that directly informs laws and programs at the state level. [9]

CalEnviroScreen and other screening methods can help decision-makers take a proactive, rather than reactive,

approach to promoting environmental justice through policies centered on avoiding potential health risks and reducing or mitigating existing threats. [10] A cumulative impact assessment promotes environmental justice by providing:

- An accurate portrayal of the wide range of pollution burdens and socioeconomic issues that communities experience, and the uneven distribution of those burdens; and
- A science-based tool that enables policymakers to target resources, investments, and pollution reduction efforts in overburdened areas.

CalEnviroScreen has been used at both the state and local levels to provide environmental protections and funding for neighborhoods severely impacted by pollution and related vulnerabilities. For policymakers, the tool is useful for developing policies and initiatives that can positively transform and uplift impacted communities. From a community perspective, the tool and its data provide scientific "credibility" that can amplify the lived experience of residents, and can also provide useful data to inform advocacy on the policies and land use decisions that impact health and quality of life.

Since developing CalEnviroScreen, CalEPA and OEHHA have demonstrated a strong commitment to improving the tool over time, including engaging in multiple processes to solicit public input to refine CES' data and methods. Academics, researchers, local governments, advocates, and community groups have all contributed to improving each version, providing detailed comments and regional perspectives to strengthen the tool's ability to identify disadvantaged communities. Although it is challenging to create a tool for a state as diverse as California, we look forward to seeing continued improvements in CalEnviroScreen over time through CalEPA's extensive and iterative process.

Beginning with a brief history of the tool's development, this paper provides an overview of how CalEnviroScreen is currently being used in public policy. Next, we discuss best practices for using CES and share recommendations on additional areas where CES could play a vital role in reversing and avoiding disproportionate impacts on EJ communities.

The California Environmental Justice Alliance (CEJA) encourages the use of CES 3.0 and similar tools by all of California's state, regional, and local agencies. Incorporating CES 3.0 into environmental and land use policies will encourage the development of important protections and investments for our state's most vulnerable communities.

PHOTO BY PETER BENNETT, COURTESY OF CITIZEN OF THE PLANET / ALAMY STOCK PHOTO.

II. BACKGROUND: ENVIRONMENTAL JUSTICE AND CALENVIROSCREEN

People of color, low-income residents, immigrants, and indigenous communities tend to experience disproportionate environmental burdens and related health issues, due to a complex set of factors ranging from poor land use planning to discriminatory housing policies. As a result, these environmental justice or disadvantaged communities continue to experience greater barriers to opportunity and more limitations to overall health and quality of life. Many communities and EJ organizations have organized locally, regionally, and statewide for years to combat the laws and decisions that have adversely impacted their lives and neighborhoods and advance community-driven solutions.

By 1999, the hard work of EJ organizers and advocates resulted in the passage of an official definition for "environmental justice" in California state law. The first Advisory Committee on Environmental Justice — composed of grassroots environmental justice advocates, community and environmental organizations, local and regional land use planning agencies, air districts, large and small businesses, and a federally recognized tribe — convened shortly afterward. The committee's first task was to identify goals and strategies for integrating environmental justice into CalEPA programs, including the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. [11]

The committee immediately flagged the need for agencies "to do a better job of assessing cumulative impact on communities." [12] Given the state's traditional facility-by-facility, chemical-by-chemical approach to regulation, agencies lacked a science-based methodology to assess the cumulative impact of environmental hazards in a holistic way, and therefore could not address patterns of unequal environmental impacts. To advance environmental justice, California would need to step away from its single-pollutant and single-polluter focus to move toward a more comprehensive and precautionary approach to environmental decision-making. The committee made several recommendations, including developing a peer-reviewed science-based tool to assess cumulative impact in communities. [13] In October 2004, CalEPA adopted an EJ Action Plan that committed to developing guidance on cumulative impact analysis, precautionary approaches, public participation, and capacity building.

The EJ Advisory Committee helped to develop a working definition of "cumulative impact" for CalEPA. Adopted in 2005, CalEPA's definition highlights the need to focus on multiple sources of pollution and to address the fact that socioeconomically disadvantaged communities are more vulnerable to the adverse impacts of pollution.

CALEPA'S WORKING DEFINITION OF CUMULATIVE IMPACT [14]

Cumulative impact means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socioeconomic factors, where applicable, and to the extent data are available.

Over the next several years, OEHHA, which focuses on assessing the health risks posed by environmental contaminants, began working on a cumulative impact methodology. In 2010, it released a report on the science and data of cumulative impact. OEHHA found that multiple pollution sources are disproportionately concentrated in low-income communities with high minority populations and socioeconomic factors increase sensitivity to pollution, resulting in higher cumulative pollution impact. [15]

After releasing two draft versions of the tool (July 2012 and January 2013), holding numerous workshops across the state, and receiving public comments on both drafts, OEHHA published the final CalEnviroScreen version 1.0 in April 2013.

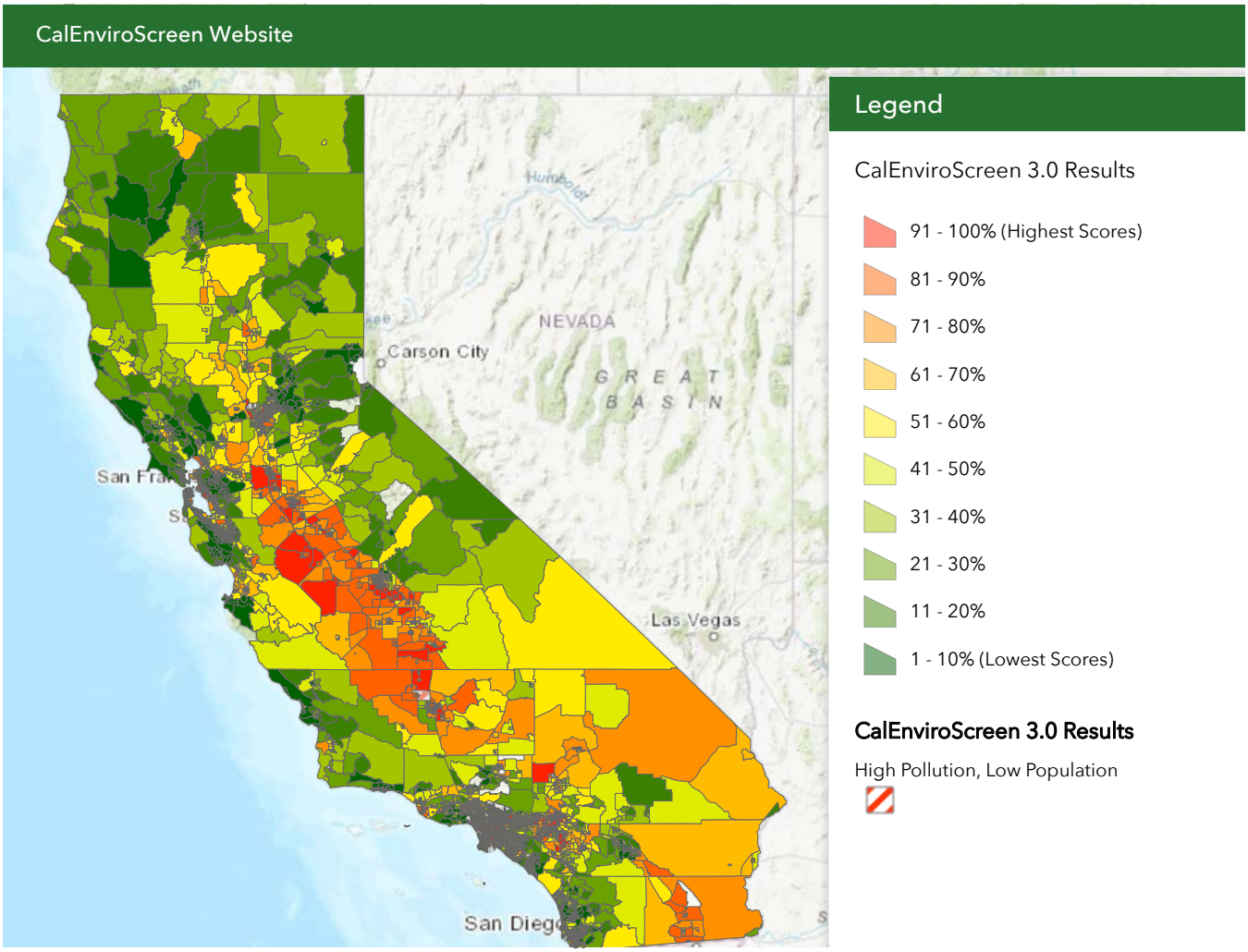
CalEnviroScreen has been revised several times to improve the tool's methods and include the most recent indicator data. OEHHA released version 1.1 in September 2013, version 2.0 in October 2014, and version 3.0 in January 2017. Most recently, in response to concerns that the tool did not include enough public health or cost of living indicators, CalEPA added two new indicators for version 3.0: cardiovascular disease and rent burdened low-income households. [16] (For more background on CES 3.0 indicators, see *Table 2, p. 17.*) CalEPA has also worked to address data gaps within the tool in order to create more accurate assessments. In October 2014, OEHHA released an update to version 2.0 of the tool to incorporate pollution data from the California-Mexico border. [17] In 2015, AB 1059 (E. Garcia) required OEHHA to collect data on air pollution, water quality, hazardous waste, and toxic chemical releases along the California-Mexico border for inclusion in the next update. [18] CalEPA also collaborated with the San Ysidro community in San Diego to ground-truth local CES results to ensure that air quality impacts in San Ysidro are accurately captured in CalEnviroScreen. The San Ysidro study's results and process are documented on CalEPA's website at: https://oehha.ca.gov/calenviroscreen/general-info/san-ysidro-community-air-study.

A. HOW CALENVIROSCREEN 3.0 WORKS

CalEnviroScreen analyzes data on environmental hazards and exposures, public health factors, and socioeconomic issues to create numerical scores for every census tract in the state of California. The tool's data set and map of results are publicly available online and can be downloaded to support related applications or advocacy efforts.

CalEnviroScreen's metrics and methodology are science-based and peer-reviewed. In fact, a recent environmental health study, published in December 2017, independently verified CalEnviroScreen 2.0 results and reconfirmed the need for the environmental risk assessment paradigm to shift away from "single stressor evaluation toward cumulative assessments of multiple stressors." [19] The authors conclude that CalEnviroScreen works accurately for its intended purpose — to screen California for areas with high environmental exposure and population vulnerability. [20]

FIGURE 1: MAP OF STATEWIDE CALENVIROSCREEN 3.0 RESULTS

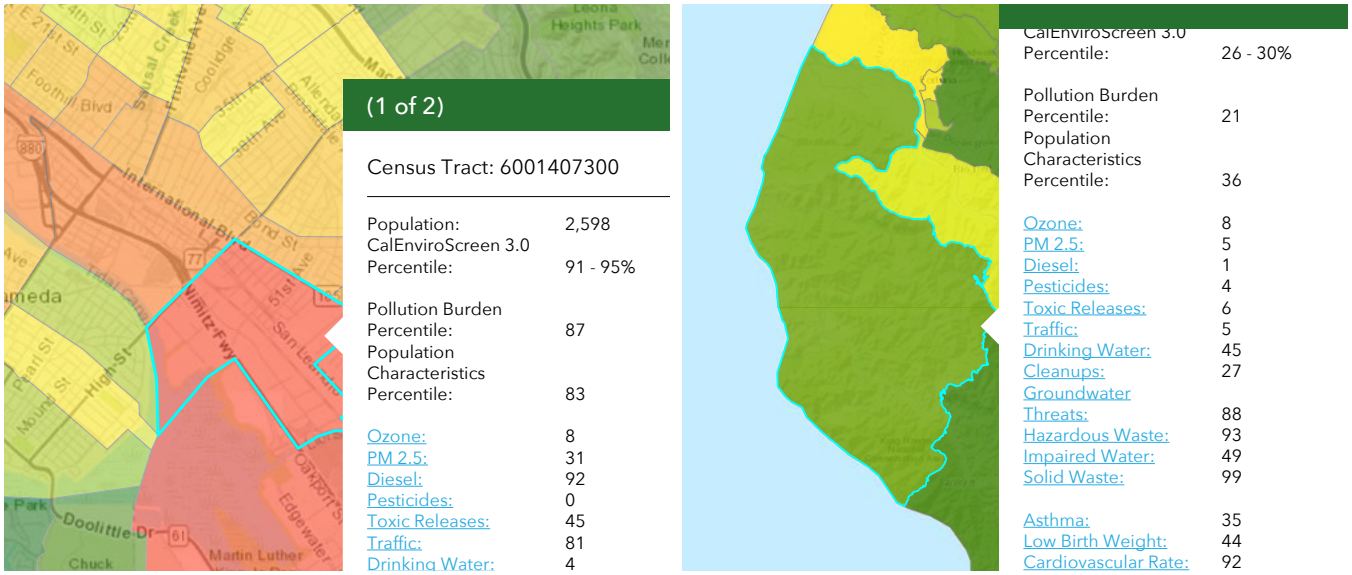


Source: OEHHA. Available at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.

CalEnviroScreen utilizes the most recent environmental, health, and socioeconomic data across 20 different statewide indicators. The indicators are based on factors that have been identified in academic and scientific literature as significantly impacting health or influencing vulnerability to disease. They are organized into four component categories: Pollution Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors (*Table 2, p. 17*). These components represent two primary metrics — Pollution Burden and Population Characteristics. After multiplying Pollution Burden and Population Characteristic scores to produce an overall CES score for each census tract, all census tracts are then ordered from highest to lowest, and are then assigned a percentile rank. The percentile ranking for each census tract demonstrates the tract's degree of burdens relative to the rest of the state's census tracts. [21]

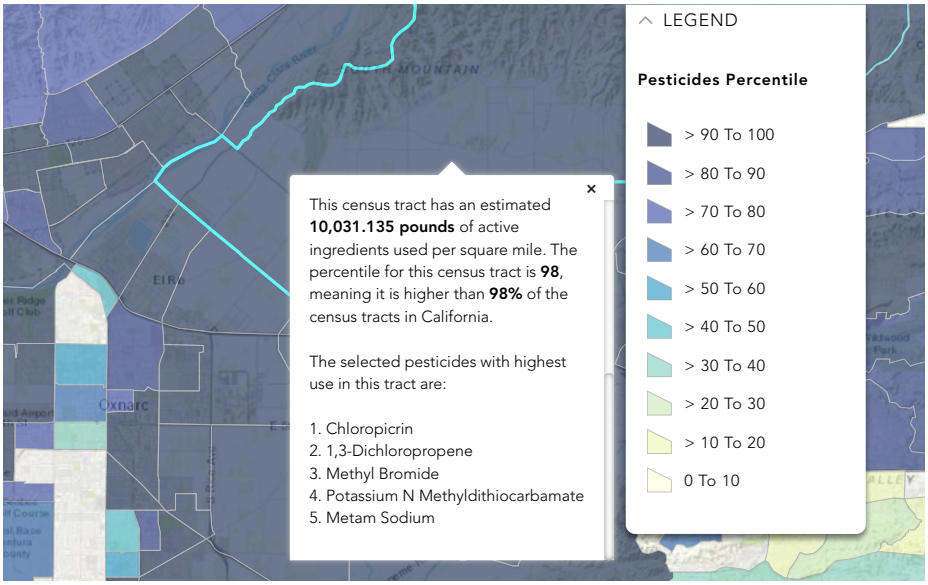
CalEnviroScreen's online mapping tool (*Figure 1: Map of Statewide CalEnviroScreen 3.0 Results*) displays and color-codes the overall CES score of each census tract in California according to its percentile rank. Clicking on an individual tract reveals a breakdown of percentile rankings for each CES indicator, as well as the tract's total population. While CalEPA and OEHHA do not include race or age as indicators within CalEnviroScreen, demographic information, including age and race/ethnicity, is still available for each census tract. Maps that isolate the rankings and scores for each individual indicator are also available online: http://oehha.maps.arcgis.com/apps/MapSeries/index.html?appid=8dad35dcd2274285874e60871c404edc

FIGURES 2 AND 3:
CES 3.0 MAPS AND INDICATOR RANKINGS FOR INDIVIDUAL CENSUS TRACTS



Source: OEHHA. Available at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.

FIGURE 4: CES 3.0 INDICATOR MAP ILLUSTRATING DATA AND RANKINGS ON PESTICIDE EXPOSURE FOR THE VENTURA COUNTY AREA



Source: OEHHA. Available at:
http://oehha.maps.arcgis.com/apps/MapSeries/index.html?appid=8dad35dcd2274285874e60871c404edc.

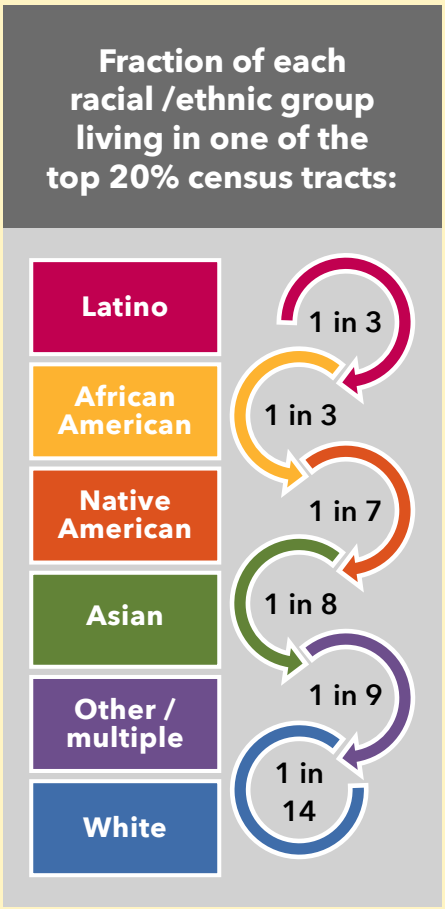
CALENVIROSCREEN ANALYSIS: RACE/ETHNICITY AND AGE

For each version of the CalEnviroScreen tool, CalEPA and OEHHA have produced a supplemental report to analyze the relationship between CES scores and race/ethnicity using decennial census data. For CES 3.0, the supplemental report also compares CES scores in relation to specific age groups after removing the former age indicator that was included in version 2.0 that measured percentages of children and elderly. Version 3.0 omitted the age indicator due to concerns that it did not contribute to an accurate identification of DACs. [22]

In June 2018, CalEPA and OEHHA released their latest report, *Analysis of Race/Ethnicity, Age, and CalEnviroScreen 3.0 Scores*. The report's analysis confirms what is already well understood in many environmental justice communities: that high rates of pollution disproportionately impact certain communities of color in California. The research reveals that more than 18 percent of Latinxs and more than 17 percent of African Americans live in one of the top 10 percent most burdened communities according to CES 3.0. In comparison, less than 3 percent of whites reside in the top 10 percent most impacted communities. [23] Such findings allude to disparate opportunities for, and even discriminatory treatment of, people of different races and ethnicities in environmental and land use planning decisions. Investments and efforts that direct greater protections and resources to communities of color are crucial to ensuring the fair treatment of all Californians regardless of their racial or ethnic background, and compliance with state and federal civil rights laws.

For the report's age analysis, researchers found that young children under the age of 10 are more likely to be impacted by pollution than those between the ages of 10-64 and the elderly (defined as ages 65 and over). When age was analyzed in combination with race/ethnicity, the study found that a much greater percentage of African American and Latinx children reside in the top 10 percent most burdened communities in California compared to white children. [24] Such findings are concerning since young children are highly vulnerable to the effects of pollution and are more susceptible to pollution-related health problems, illness, and death. [25]

FIGURE 5: CALENVIROSCREEN 3.0 SCORE BY RACIAL/ETHNIC GROUP



Source: CalEPA and OEHHA

As previously explained, the overall CalEnviroScreen score for each census tract is a relative ranking, not an absolute indicator of the degree of a community's burden. It should be noted that CalEnviroScreen's statewide ranking of communities may not fully capture certain areas that maintain very localized impacts. California's large size and diverse geographies and industries make it challenging to capture every local or region-specific impact. During CalEPA's public comment periods for the tool, members of the public have suggested a range of ways to improve CalEnviroScreen, such as incorporating additional indicators (e.g., data on race/ethnicity, proximity to smaller pollution sources, climate vulnerabilities, etc.) and improving the tool's formula and data sets.

Despite some challenges, CalEPA and OEHHA have demonstrated a strong commitment to improving CalEnviroScreen's accuracy over time by adding (or subtracting) indicators, incorporating the most current available data, and utilizing feedback from the public. CEJA looks forward to seeing CalEnviroScreen's continued improvement and evolution over time through this iterative process.

(Please see *Appendix A, p. 45* for more information on the history of CES 3.0's development, and *Appendix B, p. 46* for additional information on the tool's indicators and formula.)

B. DEFINING THE DISADVANTAGED COMMUNITY (DAC) THRESHOLD

Although CES provides a statewide ranking of all census tracts, nothing within the tool itself determines which census tracts should be defined as "disadvantaged" for the purposes of public policy. In other words, there is no prescribed "disadvantaged community" (DAC) cutoff point within CES 3.0.

CalEPA was first called upon to define disadvantaged communities through **SB 535 (De León, 2012)**, which set aside a minimum of 25 percent of the state's **Greenhouse Gas Reduction Fund (GGRF)** to benefit disadvantaged communities. SB 535 directed CalEPA to identify DACs using "geographic, socioeconomic, public health, and environmental hazard criteria," but did not prescribe a methodology or a specific threshold for this determination. [27] (Please see *Section IV. (B), p. 32* for more on SB 535.)

To produce a definition of a disadvantaged community, CalEPA held two separate and extensive public processes that included stakeholder engagement, public input, and legislative direction to determine the SB 535 DAC designation. [28] After considering "basic principles of fairness," CalEPA designated the top 25 percent highest scoring census tracts in CalEnviroScreen (or, those communities at or above the 75th percentile of CES 3.0 scores) as disadvantaged communities for purposes of SB 535 implementation. [29]

During this process, some argued for a tighter definition of disadvantaged communities in order to concentrate investments in the state's neediest areas, while others supported broadening the DAC threshold to include a greater number of census tracts. CalEPA reasoned that since SB 535 had already set aside 25 percent of the funds for disadvantaged communities, a threshold of more than 25 percent would have resulted in less money set aside for DACs than their per capita share. Since approximately 25 percent of Californians live in the top 25 percent highest scoring CalEnviroScreen census tracts, the 25 percent funding set-aside would guarantee that DACs receive a percentage of investments proportional to their percentage within California's total population.

In response to concerns that SB 535's definition of a disadvantaged community did not reach enough low-income Californians, Assemblymember Jimmy Gomez authored AB 1550, signed into law in 2016. AB 1550 amended SB 535 to include a 10 percent set-aside of GGRF investments for low-income communities and households in addition to the 25 percent set aside for DACs, expanding the investment set-aside to include a wider range of Californians living in poverty.

Maps of DACs according to the SB 535 designation are available here:
https://oehha.ca.gov/calenviroscreen/sb535.

Maps showing AB 1550 low-income census tracts are available here:
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm.

TABLE 2: CALENVIROSCREEN 3.0 INDICATORS [26]

CALENVIROSCREEN 3.0 INDICATORS			
POLLUTION BURDEN		POPULATION CHARACTERISTICS	
EXPOSURES	ENVIRONMENTAL EFFECTS	SENSITIVE POPULATIONS	SOCIOECONOMIC FACTORS
 Ozone Concentrations	 Cleanup Sites	 Asthma ER Visits	 Educational Attainment
 PM2.5 Concentrations	 Groundwater Threats	 Cardiovascular Disease (ER visits for heart attacks)	 Housing Burdened Low Income Households
 Diesel PM Emissions	 Hazardous Waste	 Low Birth Weight Infants	 Linguistic Isolation
 Drinking Water Contaminants	 Impaired Water Bodies		 Poverty
 Pesticide Use	 Solid Waste Sites and Facilities		 Unemployment
 Toxic Releases from Facilities			
 Traffic Density			

Source: OEHHA. Available at: https://oehha.ca.gov/calenviroscreen/indicators

PHOTO BY TIFFANY ENG.

III. USING CALENVIROSCREEN TO IDENTIFY DISADVANTAGED COMMUNITIES

CalEnviroScreen 3.0 is a comprehensive tool that is uniquely suited to inform a broad array of environmental decisions. Planners and policymakers can utilize its data to reverse uneven environmental enforcement practices, protect sensitive land uses such as schools and retirement homes, prevent an overconcentration of polluting facilities in vulnerable areas, and direct much-needed investments or improvements to under-resourced neighborhoods. While CES is particularly well suited for use in environmental programs and policies, it may also be useful for other policy applications. Decision-makers may want to customize its use, combine it with additional metrics, and/or explore other tools.

Despite CalEnviroScreen's widespread use in state policies and programs, decision-makers should carefully consider each policy application to understand how best to use CES or whether it is the most appropriate tool to use. CalEPA has acknowledged that "CalEnviroScreen may not be the appropriate tool to guide all public policy decisions. Other tools — or individual data layers — might be more useful for different purposes, such as for identifying communities facing socioeconomic disadvantage or health disadvantage." [30]

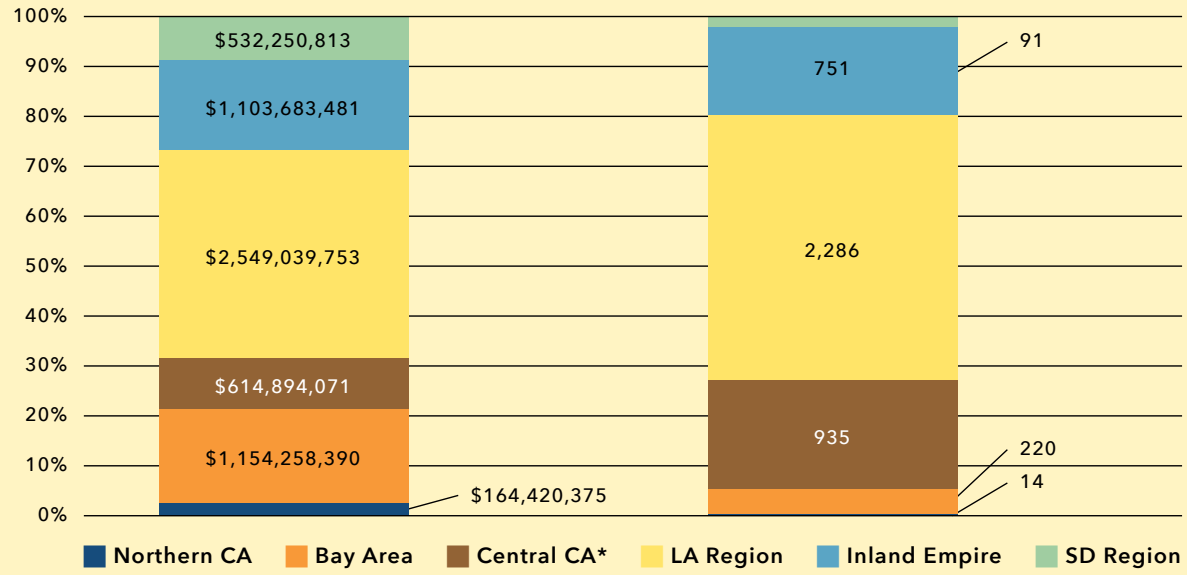
The following section outlines some of the various definitions of DACs that currently exist in state law, some of the different ways in which CES may be customized to fit particular policy settings, and additional tools decision-makers may want to consider using when crafting policies to protect and/or benefit DACs.

For more information on the types of policies and decisions that CalEnviroScreen has been used for and is well suited for, see *Section IV, p. 29,* and *Section V, p. 37.*

CALENVIROSCREEN MYTHS AND MISCONCEPTIONS

Since CalEnviroScreen was first introduced and utilized in state policy, a significant amount of misinformation has circulated about the tool. Common misconceptions range from the tool's methodology and how it works, to the level of funding it directs into various regions, to its original intent, and to the range of options for using and/or combining the tool with other metrics.

For instance, one common myth is that the Bay Area does not receive a considerable amount of funding from the California Climate Investments initiative since the region does not contain as many SB 535 DAC census tracts compared to other regions of the state. Upon looking at the data, however, it is evident that the Bay Area does indeed receive a large share of climate investment dollars. In fact, the Bay Area receives a greater amount of GGRF dollars per DAC census tract when compared to other regions of the state such as Los Angeles.



** Total amounts do not include funds attributable to the High-Speed Rail Project.*

FIGURE 6: TOTAL IMPLEMENTED GGRF DOLLARS BY REGION VS. NUMBER OF DACS BY REGION

Source: The Greenlining Institute (2018). California Climate Investments Fact Sheet.

Since CalEnviroScreen is currently used throughout many state programs and laws, it is vitally important that policymakers and other stakeholders are well informed on how CES works, its various uses and applications, and relevant policy considerations for using the tool. Please refer to *Appendix D, p. 52* for more detailed information on some of the most common misconceptions about the CalEnviroScreen tool.

A. DISADVANTAGED COMMUNITY DEFINITIONS IN CURRENT LAW AND POLICY

As CES 3.0 usage has become more widespread in policymaking, a variety of ways to define disadvantaged communities have emerged. The following table (*Table 3*) outlines some of the laws and programs that incorporate CES 3.0 and other metrics to identify disadvantaged and low-income communities. Taken as a whole, these examples provide a broad and varied landscape of some of the possible ways to define disadvantaged communities. (Note: Proposition 1 is unique in using only income criteria to identify disadvantaged and severely disadvantaged communities.) A longer discussion of these programs can also be found in *Section IV, p. 29* on current laws and programs that utilize CES.

TABLE 3: SAMPLE DISADVANTAGED & LOW-INCOME COMMUNITY DEFINITIONS*

STATEWIDE DEFINITIONS		
Use of CalEnviroScreen	**Definition of Disadvantaged Community (DAC)**	**Definition of Low-Income Household or Community**
Active Transportation Program CA Department of Transportation[31] *Funding for non-motorized walking and biking infrastructure projects*	Any of the following: 1. Census tracts in the top 25% of statewide CES scores; **or** 2. Median household income (MHI) at or below 80% of statewide MHI; **or** 3. 75% of school students qualify for free or reduced lunch; **or** 4. Located on tribal land; **or** 5. Regional definition	N/A
California Alternate Rates for Energy (CARE) Program CA Public Utilities Commission[32] *Discounted energy bills for low-income households*	N/A	Households that meet current specified income limits (e.g., a family of four must maintain an income at or below $49,200 as of May 31, 2018) **or** Enrolled in public assistance programs such as Medicaid/ Medi-Cal, etc.
Electric Program Investment Charge (EPIC) CA Energy Commission[33] *Clean energy technology demonstration and deployment projects*	Census tracts in the top 25% of statewide CES scores	Census tracts with MHI at or below 80% of statewide MHI **or** at or below Department of Housing and Community Development (HCD) state income limits

Green Tariff Shared Renewables Program[34] CA Public Utilities Commission *Access to renewable energy: reserves 1/6th of total program megawatts for DACs*	Census tracts in the top 20% of statewide CES scores	N/A
Greenhouse Gas Reduction Fund: AB 1550 (Gomez, 2016) California Air Resources Board and Multiple Administering State Agencies *Requires at least 25% of investment projects to be located within DACs and at least 10% to be in low-income households and communities*	Uses SB 535's definition of DACs: Census tracts in the top 25% of statewide CES scores	MHI at or below 80% of statewide MHI **or** MHI at or below HCD state income limits
Greenhouse Gas Reduction Fund: SB 535 (De León, 2012) California Air Resources Board and Multiple Administering State Agencies *Requires at least 25% of investments to benefit DACs*	DACs identified by CalEPA using geographic, socioeconomic, public health, and environmental hazard criteria Census tracts in the top 25% of statewide CES scores	N/A
Planning for Healthy Communities: SB 1000 (2016) Governor's Office of Planning and Research *EJ elements or policies in General Plans*	Census tracts in the top 25% of statewide CES scores **or** A low-income area that is disproportionately affected by environmental pollution and other hazards[35]	N/A
Prop 1 Integrated Regional Water Management Program Department of Water Resources *Water infrastructure funding for DACs*	Communities with annual MHIs below 80% of the statewide annual MHI[36] "Severely Disadvantaged" communities have incomes below 60% of statewide annual MHI[37]	N/A

Single-Family Affordable Solar Housing (SASH) [38] and **Multifamily Affordable Solar Housing (MASH)** [39] CA Public Utilities Commission *Energy efficiency and energy rebate programs*	N/A	Affordable housing owned by household with income at or below 80% of area median income (AMI) (SASH) Low-income residential housing financed by eligible housing tax credits, bonds, loans or grants, deed or resale restricted or subject to equity sharing (MASH)
Solar on Multifamily Affordable Housing (SOMAH) CA Public Utilities Commission [40] *Solar installations on low-income households*	Census tracts in top 25% of statewide CES scores	A multifamily affordable housing property with least 80% of household incomes at or below 60% AMI
Transformative Climate Communities Program [41] CA Strategic Growth Council *Large-scale grants to implement comprehensive, community-led climate plans in the most disadvantaged communities*	"Most disadvantaged" communities have a majority of census tracts in the top 5% of statewide CES scores **and** Remainder of community covers census tracts in the top 25% of statewide CES scores	Remainder of community may also cover low-income communities as defined by AB 1550
LOCAL AND REGIONAL DEFINITIONS		
Los Angeles and Fresno Initiatives CalEPA Environmental Justice Compliance and Enforcement Working Group *Cross-media enforcement of environmental laws*	Los Angeles and Fresno neighborhoods located in census tracts in the top 5% of statewide CES scores	N/A
San Diego Climate Action Plan (CAP), 2015 City of San Diego [42] *Prioritizes capital improvements in "underserved communities"*	"Underserved communities" are census tracts in the top 30% of CES scores, using statewide scores or a local/regional ranking	N/A

* Table refers to the most current definitions as of June 8, 2018

B. METHODOLOGIES FOR USING AND CUSTOMIZING CALENVIROSCREEN

Policymakers at all levels can adopt an off-the-shelf version of CalEnviroScreen by focusing on the top 25 percent highest scoring census tracts in the state per SB 535's definition of a disadvantaged community. However, CalEnviroScreen's accessibility and versatility allow local governments and planners to adjust the tool to fit their particular goal and geographical context. Options for adjusting CES rankings and indicators to achieve specific policy objectives are outlined below. They include:

1. **Using a regional ranking**
2. **Customizing a percentage threshold to identify DACs**
3. **Customizing indicators**
4. **Combining CalEnviroScreen with additional metrics**

1. USING A REGIONAL RANKING

While CalEnviroScreen's statewide ranking is useful for a variety of policy applications, some jurisdictions may be interested in analyzing cumulative impact at a smaller geographical scale. Planners and decision-makers may opt to do this, for example, if they have relatively fewer census tracts in the top 25 percent of CES 3.0 results, which may occur in regions that have relatively better air or water quality than other areas of the state. A regional ranking can also be useful for cities and counties that contain many top 25 percent CES census tracts and want to target the neighborhoods with the highest burdens.

A regional ranking, accomplished through a comparison of census tracts within a county, or a city or particular jurisdiction, can enable decision-makers to hone in on local or regional issues. For instance, metropolitan planning organizations (MPOs) can use regional rankings when developing activities and objectives for sustainable community strategies (SCSs) or regional transportation plans (RTPs). California's Air Quality Management Districts, Air Pollution Control Districts, and Regional Water Quality Control Boards can also employ regional rankings to identify EJ communities in their area to prioritize for enforcement actions. Regional rankings can also provide valuable information to community advocates who are working on issues from a regional, rather than statewide, perspective, and/or are engaging in advocacy with local governments or regional policymakers.

Several jurisdictions and agencies have already applied a regional ranking analysis using CES data. When the San Francisco Public Utilities Commission (SFPUC) performed an environmental justice analysis of biosolids digester facilities in the Bayview-Hunters Point neighborhood, the commission employed a city-based ranking of CES 2.0 scores to identify the community's disproportionate burdens relative to the rest of the city. SFPUC found that more than half of the "indicators studied . . . were . . . of environmental justice concern for Bayview-Hunters Point, meaning that they indicate an existing disproportionate adverse condition in this neighborhood compared to San Francisco as a whole." [43]

In addition to using CalEnviroScreen's statewide ranking, a number of California Public Utilities Commission (CPUC) rulemakings also direct investor-owned utilities (IOUs) to identify DACs through service territory-wide ranking of CES data. Similarly, the city of San Diego's 2015 Climate Action Plan (CAP) provides the option of using a local or regional ranking of CES census tracts to inform decisions for the San Diego area. [44] More information about the CPUC programs and the San Diego CAP are discussed in *Section IV, p. 29*.

To increase the use of CalEnviroScreen at the local and regional levels, CEJA and other environmental justice advocates have requested that CalEPA and OEHHA also publish official regional rankings. Though OEHHA has yet to take this next step, anyone can perform this type of analysis by downloading CES raw data on OEHHA's CES 3.0 website.

2. CUSTOMIZING A PERCENTAGE THRESHOLD TO IDENTIFY DACS

Planners and decision-makers may also want to use a different percentage threshold to define a disadvantaged community for a particular goal. Depending on the context, it may be more useful to create a more narrow or a more inclusive threshold. For areas with many top 25 percent CES census tracts such as urban Los Angeles, local governments and planners may want to focus on a smaller subset of census tracts that maintain the highest level of burdens. CalEPA's cross-media enforcement initiatives have focused on specific neighborhoods within the cities of Los Angeles and Fresno that score in the top 5 percent of CES results. [45] Likewise, in order to direct catalytic investments to the "most disadvantaged communities" in the state, the Strategic Growth Council's Transformative Climate Communities program made its first round of funding eligible to communities with a majority of census tracts located in the top 5 percent of CES 3.0 results, among other requirements. [46]

In other jurisdictions, it may be more desirable to use a broader threshold in order to identify and serve a greater number of EJ communities. San Diego's CAP also utilizes this strategy, defining underserved communities as census tracts ranking in the top 30 percent of statewide or localized CES scores.

3. CUSTOMIZING INDICATORS

Although CES 3.0 integrates 20 indicators to produce an overall score for each census tract, decision-makers may choose to narrow the number of indicators they use to identify DACs.

Depending on the policy application, it may be more appropriate to rank census tracts based on CalEnviroScreen's Pollution Burden scores alone, irrespective of the Population Characteristics score (e.g., so that tracts scoring in the top 75th or top 80th percentile of Pollution Burden scores are identified as DACs). [47] This approach would be useful for evaluating communities that rank lower on Population Characteristics and yet are still subject to environmental pollution.

In addition, CES 3.0 can be customized by selecting a subset of indicators that are most appropriate for a specific context. This approach can be effective if certain CES indicators are not quite relevant for an area, or if decision-makers want to focus their attention on a small number of issues. If an area does not have significant air quality concerns, for example, the air quality indicators in CalEnviroScreen that impact the final scores can be left out to produce a ranking that is more useful for that area's needs. Similarly, policy-makers working on drinking water issues may select the indicators that enable the communities ranked high in drinking water contamination and other related issues to rise to the top.

4. COMBINING CALENVIROSCREEN WITH ADDITIONAL METRICS

It may also be useful to combine CalEnviroScreen with other indicators, metrics, or tools to produce an analysis that caters to the local context. For instance, researchers may choose to include additional demographic and socioeconomic indicators such as age, race/ethnicity, or access to health care; or environmental indicators such as park acreage, proximity to oil and gas extraction sites, or various types of climate vulnerability.

As previously mentioned, SFPUC conducted an EJ analysis of the Bayview-Hunters Point neighborhood. The study utilized CES 2.0 data alongside metrics that addressed local issues, producing a comprehensive analysis of 62 total indicators that was responsive to community needs. [48] The supplementary indicators encompassed a variety of local issues such as resident displacement, homelessness, amount of neighborhood infrastructure, availability of services and community support, nuisance odors, outdoor noise levels, library proximity, and average child care burden, to name a few. [49]

CalEnviroScreen can also be used in a "menu of options" approach that allows communities to be identified based on CES ranking, or another indicator. AB 1550 (Gomez, 2016) is an example of supplementing CES with another metric. After SB 535 dedicated at least 25 percent of GGRF funding to disadvantaged communities through the California Climate Investments initiative, concerns emerged that low-income Californians, not just the state's most environmentally burdened communities, also need more climate investments. As a solution, AB 1550 dedicated an additional 10 percent of funding for low-income communities and households. AB 1550 combines CalEnviroScreen results with an additional low-income layer to create maps that identify a greater number of communities eligible for set-asides within climate investment programs.

More information about the definition of low-income communities per AB 1550 is outlined in *Section IV. (B), p. 32*. CARB's maps showing the low-income neighborhoods or households within a half-mile of DAC census tracts are available here: https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm.

Another example of the "menu of options" approach is the Active Transportation Program (ATP) administered by the California Department of Transportation, which aims to reduce greenhouse gases and improve public health by increasing non-motorized transportation such as walking and biking. At least 25 percent of ATP funds must benefit projects in disadvantaged communities, which may be identified by any one of the following criteria: (1) an area located in a median household income that is less than 80 percent of the statewide median income based on the most current data; (2) census tracts in the top 25 percent of CES 3.0 results per SB 535; (3) areas where at least 75 percent of public school students are eligible for free or reduced-price meals through the National School Lunch Program; (4) an area identified by a MPO or a RTPA using a robust public process; or (5) a Native American community located in federally recognized tribal lands. [50]

C. OTHER TOOLS FOR IDENTIFYING DACS

Several other peer-reviewed mapping tools can be used along with CES 3.0 to identify and define disadvantaged and low-income communities. For instance, decision-makers may turn to mapping tools that are more tailored to other public policy issues such as drinking water quality or public health. Local and regional decision-makers may also want to reference tools that explicitly consider race in combination with environmental indicators, in response to the scientific research indicating that "the relationship between pollutant exposure, stress, and health outcomes can vary based on the race and ethnicity of a population." [51] However, policymakers may also find that other tools may be more appropriate for a particular situation, and may choose to use those instead of CalEnviroScreen.

Some of these other tools are described here. For a more comprehensive list of recommended tools, please see CEJA and PlaceWorks' SB 1000 Implementation Toolkit, available at: https://caleja.org/sb1000-toolkit.

1. DEPARTMENT OF WATER RESOURCES DAC & EDA MAPPING TOOLS

Proposition 1, the Water Quality, Supply, and Infrastructure Improvement Act of 2014, created several programs that both engage communities in regional water planning, and identify and fund projects that benefit disadvantaged communities, including the Integrated Regional Water Management (IRWM) Grant Program. Proposition 1 specifies that no less than $51 million of the IRWM program's implementation grants must be spent on projects that directly benefit DACs. [52] It also has components earmarked to benefit "economically distressed areas."

Proposition 1 defines disadvantaged communities as those with an annual median household income (MHI) that is less than 80 percent of the statewide MHI. In addition, communities with a MHI below 60 percent of the statewide MHI are designated as "severely disadvantaged." The law also defines an "economically distressed area" (EDA) as "a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85 percent of the statewide median household income, and with one or more of the following conditions as determined by the department: (1) financial hardship; (2) unemployment rate at least 2 percent higher than the statewide average, or (3) low population density." [53]

The Department of Water Resources has developed two different web-based mapping tools using Proposition 1's definitions of DACs and EDAs to assist local agencies and stakeholders with identifying and evaluating these communities. Both mapping tools can be accessed here: www.water.ca.gov/Programs/Integrated-Regional-Water-Management/Mapping-Tools.

2. ENVIRONMENTAL JUSTICE SCREENING METHOD (EJSM)

The initial version of this cumulative impact screening method was developed at the request of the California Air Resources Board (CARB). To create it, leading environmental justice researchers Dr. Rachel Morello-Frosch, Dr. Manuel Pastor, and Dr. James Sadd worked in collaboration with local environmental justice

PHOTO COURTESY OF ENVIRONMENTAL HEALTH COALITION.

HOMES NEXT TO AUTOBODY SHOPS IN NATIONAL CITY.

communities to verify the method's results. Similar to CalEnviroScreen, it has been described as "a relatively simple, flexible, and transparent mapping and scoring procedure to examine cumulative impact and social vulnerability within California regions for use in citing, zoning, and policy development processes." [54] Its third version created in 2015 assesses cumulative impact along four dimensions: (1) hazard proximity and land use; (2) air pollution exposure and estimated health risk; (3) social and health vulnerability; and (4) climate change vulnerability. [55]

EJSM differs from CES in several significant ways. First, EJSM's assessment of cumulative impact is based on a regional rather than a statewide ranking. Second, the EJSM incorporates a wider array of indicators selected from academic and scientific research and informed by community input, such as race and a number of climate change vulnerabilities. Finally, the EJSM includes a ground-truthing component that involves community-led research to ensure that EJSM results closely mirror actual conditions in EJ communities. [56]

3. CALIFORNIA HEALTHY PLACES INDEX (HPI)

The HPI was created by the Public Health Alliance of Southern California to identify "cumulative health advantage" for places (at various geographies from the census tract to the entire state) across California. The tool uses an evidence-based approach to summarize a wide range of policy-relevant social, economic, and environmental indicators. [57] These indicators capture the social determinants of health and are grouped into eight different policy action areas: (1) economic; (2) social; (3) education; (4) transportation; (5) neighborhood; (6) housing; (7) clean environment; and (8) health care access. Scores for these policy action areas were examined against life expectancy at birth, then weighted and combined to maximize the HPI's association with this health outcome. [58]

The HPI's public health framework provides a ground-truthed tool for identifying communities facing inequities that are impacting health. The tool provides a much-needed public health lens and may be used in conjunction with other tools such as CES to identify EJ and health equity communities. The HPI website includes a dynamic interactive map to view and explore the data, as well as additional data in support layers that include other health outcomes, climate hazards, and race. In addition, policy guides have been developed to accompany the HPI and offer a menu of practical solutions and concrete actions that jurisdictions can use to improve community conditions and health. For more information and to use the HPI web-based tool, go to: http://healthyplacesindex.org

4. ENVIRONMENTAL JUSTICE SCREENING AND MAPPING TOOL (EJSCREEN)

In 1994, Presidential Executive Order 12898 required all 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." [59] EPA issued EJSCREEN as part of a strategic plan developed in 2014. This EJ screening and mapping tool provides a nationally consistent data set and approach for combining environmental and demographic indicators.

Although EJSCREEN was created to assist the United States Environmental Protection Agency (U.S. EPA) with carrying out its responsibilities related to protecting public health and the environment, anyone can use the tool to analyze environmental and EJ-related concerns within their region. EJSCREEN is a web-based screening tool that utilizes 11 environmental and six demographic indicators to display color-coded maps of information at various geographic scales as well as other data layers. However, the U.S. EPA notes that EJSCREEN was not intended to serve a risk-assessment tool, nor does it necessarily define or identify DACs. Instead, researchers may use EJSCREEN to identify potential areas of concern for further outreach or analysis. [60]

5. CUMULATIVE ENVIRONMENTAL VULNERABILITIES ASSESSMENT (CEVA)

The Center for Regional Change at the University of California, Davis, created the CEVA tool to analyze the connection between environmental risks and social vulnerabilities for California's San Joaquin and Coachella Valley regions. CEVA is composed of a Cumulative Environmental Hazard Index and a Social Vulnerability Index, and references a Health Index. CEVA creates a spatial analysis to identify areas impacted by the largest concentrations of cumulative environmental hazards, as well as the least amount of social, economic and political resources to navigate these conditions. [61]

PHOTO BY CAROLINA MARTINEZ.

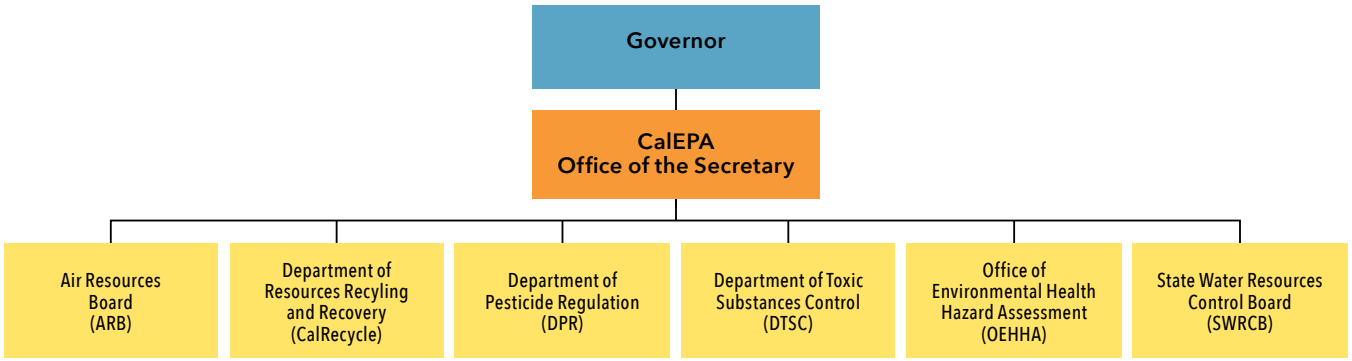
IV. CASE STUDIES: CALENVIROSCREEN IN CURRENT LAWS AND PROGRAMS

Originally developed to fulfill CalEPA's environmental justice mandates, CalEnviroScreen has become a powerful instrument for creating environmental policy in California. Its data and rankings have been incorporated into environmental laws and programs, land use plans, transportation programs, the Greenhouse Gas Reduction Fund, and affordable housing decisions. In many ways, the introduction of a cumulative impact tool such as CalEnviroScreen has dramatically improved opportunities for advancing environmental justice at both the state and local levels.

A. CALEPA USES OF CALENVIROSCREEN

In addition to defining environmental justice in state law, SB 115 (Solís, 1999) required CalEPA to adopt an environmental justice mission and integrate environmental justice into all of its programs and policies. CalEPA's Office of the Secretary oversees and coordinates the EJ programs and initiatives adopted by each of the boards, departments, and office (BDOs) under its umbrella.

FIGURE 7: CHART OF CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY BOARDS, DEPARTMENTS AND OFFICES



Source: CalEPA. Available at: www.calepa.ca.gov/about

CalEPA's EJ-focused initiatives include programs that prioritize environmental cleanup activities, capacity-building grants, and sustainable economic development in heavily impacted neighborhoods. The boards, departments and office under CalEPA also use CalEnviroScreen to prioritize Supplemental Environmental Projects (SEPs) in disadvantaged communities per **AB 1071 (Atkins, 2015)**. SEPs are projects that provide benefits to communities that were harmed by or impacted by environmental violations, funded by the polluting entities as part of a settlement. [62]

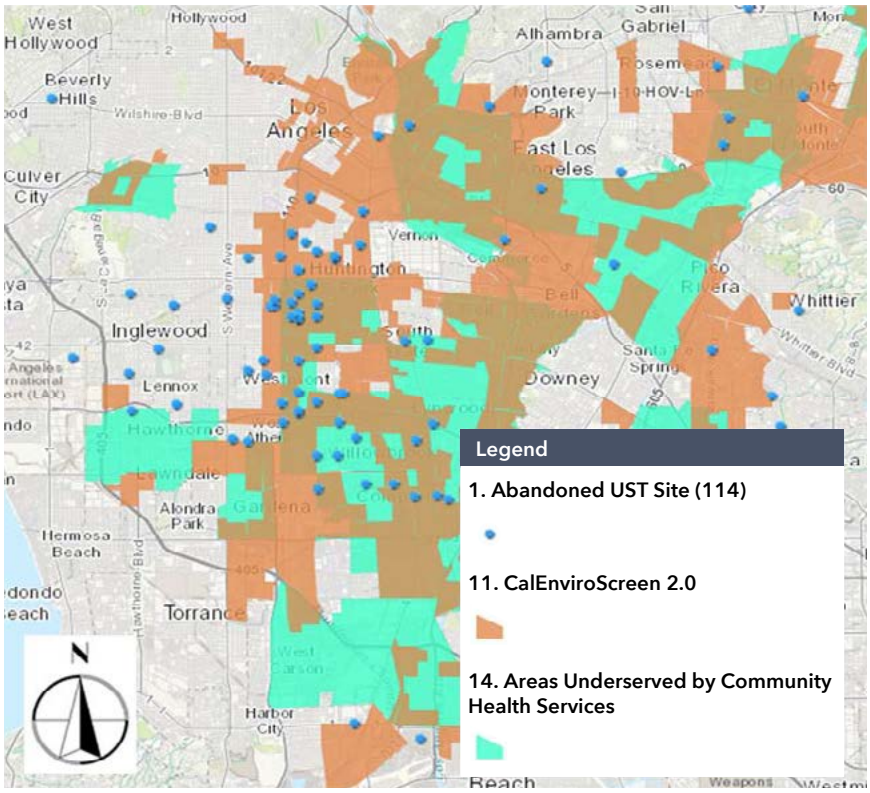
1. ENVIRONMENTAL JUSTICE COMPLIANCE AND ENFORCEMENT WORKING GROUP

CalEPA has also developed an EJ strategy focused on the cross-media enforcement of environmental laws, in which multiple environmental agencies that enforce federal, state, and local laws coordinate their enforcement efforts in the state's most highly impacted and polluted neighborhoods. [63] The **Environmental Justice Compliance and Enforcement Working Group** (Working Group) was formed for this purpose in 2013. Cross-media enforcement is an important complement to a cumulative impact assessment tool like CalEnviroScreen because it allows regulators to break out of their silos and look at the range of pollution sources in an area. The Working Group consists of representatives from CalEPA, its BDOs, and partner agencies that enforce laws that protect public health and the environment. The Working Group developed two initiatives targeting neighborhoods in the cities of Los Angeles and Fresno that fall in the top 5 percent of CES 2.0 results. In Fresno, the Working Group selected 18 contiguous census tracts ranked in the top 2 percent of pollution burden and top 3 percent of population characteristics. Fresno, the state's largest inland city, faces unique challenges including high unemployment and air quality and pesticide issues not found in other large California cities. [64] Working Group members consulted with community residents, provided assistance to local small businesses, and conducted joint multimedia compliance inspections, citing any violations they uncovered. The Los Angeles and Fresno initiatives provided an important opportunity for Working Group members to align their regulatory authority and use a more comprehensive, place-based approach to environmental enforcement.

2. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD (SWRCB)

The SWRCB and Regional Water Quality Control Boards (Water Boards) are responsible for regulating discharges (including wastewater discharges and storm water discharges from industrial activities) to surface waters (rivers, oceans, etc.) and to groundwater. From April 2013 to November 2016, SWRCB and the U.S. EPA partnered with the Unified Program Agencies on the **Abandoned Underground Storage Tank Initiative** (Initiative). The Initiative aimed to address safety and contamination concerns by targeting abandoned gas stations that had the potential to leak hazardous substances into the environment and moving them toward compliance. To do this, the Initiative prioritized areas that were both disproportionately burdened by multiple sources of pollution and were underserved by community health services, by mapping census tracts in the top 10 percent of CES 2.0 results and displaying data from the United States Department of Health and Human Services. [65]

FIGURE 8: MAPPING ABANDONED STORAGE TANKS USING CES 2.0 AND PUBLIC HEALTH DATA



Data Sources:

CalEPA, Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool (CalEnviroScreen 2.0 or CES) (Note: only the highest 10% of CES scores are shown).

Uniform Data System Mapper, U.S. Department of Health and Human Services, Health Resources and Services Administration.

Source: https://www.waterboards.ca.gov/ust/docs/abandoned_storage/2017/abandoned_ust_initiative_closeout_summary_report.pdf, pg. 5.

3. DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC)

CalEPA's Department of Toxic Substances Control (DTSC) is responsible for enforcing federal and state laws governing hazardous waste management. Through both legislative direction and the department's own actions, CalEnviroScreen has been incorporated into DTSC's work to improve the department's ability to address contamination in communities that have historically experienced disproportionate pollution burdens. After the release of CalEnviroScreen 2.0, DTSC created a map that overlaid CES 2.0 results with the locations of hazardous waste facilities to inform the public and improve the department's community outreach efforts. The map shows that the majority of hazardous waste facilities in Calfornia have been located in DACs, and is available here: http://www.dtsc.ca.gov/HazardousWaste/Permits/CalEnviroScreen_Permitting.cfm.

Given the disproportionate number of facilities located in disadvantaged communities, local residents and advocates have pressured DTSC to take greater action to reduce harms and protect public health in these communities. The Legislature responded, requiring DTSC to adopt a number of additional protections for vulnerable communities. **AB 1329 (Pérez, 2013)** requires DTSC to prioritize enforcement actions affecting the most impacted environmental justice communities as identified by CalEPA.[66] As a result, the department began the Enhanced Enforcement Initiative in Vulnerable Communities, which focuses inspection and enforcement resources on the hazardous waste transportation industry and the metal recycling industry.[67] As part of this initiative, DTSC maps metal recycling facilities and vulnerable communities using CalEnviroScreen and geographic information system (GIS) data, and then identifies facilities to target for inspections and related enforcement actions.

In 2015, **SB 673 (Lara, 2015)** also required DTSC to update its criteria for renewing and issuing new permits to hazardous waste facilities, including the processes to deny or suspend permits.[68] Although DTSC has yet to finalize its rulemaking to meet its SB 673 mandate, the law notably directs DTSC to utilize cumulative impact tools such as CalEnviroScreen and criteria such as neighborhood vulnerability to inform its permitting decisions.[69]

As DTSC works to fulfill its legislative mandates, environmental justice groups continue to push the department to make more substantial changes to its hazardous waste permitting and enforcement activities in order to achieve more equitable outcomes.

B. GREENHOUSE GAS REDUCTION FUND (GGRF)

In 2012, California established the **GGRF** to invest monies generated by the state's cap-and-trade program into additional climate programs.[69] **SB 535 (De León, 2012)** requires California to direct no less than 25 percent of GGRF funds to projects that *benefit* disadvantaged communities, while at least 10 percent of projects must be *located within* disadvantaged communities.[71] **AB 1532 (Perez)**, passed alongside SB 535, established an annual process for disbursement of GGRF funds, including annual reports to the Legislature and a triennial investment plan, among others things.

All GGRF funds must go to projects that reduce greenhouse gas emissions in alignment with our state's overall climate goals. Funds are appropriated by the Legislature[72] and are administered by several state agencies. CARB is the lead agency administering several programs and is responsible for developing and overseeing funding guidelines. As previously discussed, disadvantaged communities pursuant to SB 535 have been defined by CalEPA as the 25 percent highest scoring census tracts in CalEnviroScreen for the purposes of GGRF investments.[73]

A few years after program implementation, California adopted **AB 1550 (Gomez, 2016)** in response to concerns that more low-income Californians needed access to the climate investments. AB 1550 creates a new investment category: It sets aside an additional 10 percent of GGRF funds for low-income communities. One-half of this 10 percent is reserved for low-income households or communities that are outside of, but within a half-mile of, a designated DAC. Finally, AB 1550 clarified that for any investments to qualify for the set-aside, they must be located *within* DACs, not just benefiting them. For further information on the definitions AB 1550 uses, please refer to *Table 3, p. 22* on DAC definitions in current law and policy.

The investment minimums for low-income and disadvantaged communities apply to the entire GGRF rather than individual programs. The Legislature has also designated higher minimums for some GGRF programs, such as the Low Carbon Transit Operations Program, which requires transit agencies with DACs within their service area to spend at least 50 percent of funds on projects or services that benefit those DACs.[74] Administering agencies may also exceed the minimum requirements in order to produce more equitable outcomes. For example, the California Department of Forestry and Fire Protection (CAL FIRE) dedicated 100 percent of first-year Urban and Community Forestry Program investments to benefit DACs.[75] The program is notable for being one of the few programs that allows community-based organizations to apply for and receive funding for neighborhood-based GHG reduction projects. CAL FIRE worked with California ReLeaf, a statewide nonprofit, to set up pass-through grants to smaller organizations.[76] During the 2017–18 grant cycle, another 75 percent of this program's funds have been dedicated to projects in disadvantaged and low-income communities.

The **Transformative Climate Communities (TCC) program** created by **AB 2722 (Burke, 2016)** is a groundbreaking part of the GGRF climate investment portfolio. Administered by the California Strategic Growth Council (SGC), the TCC directs large-scale grants to community-led plans at the neighborhood scale that reduce greenhouse gases while achieving important economic, environmental, and public health co-benefits. The TCC is one of the only state programs that breaks down silos to address multiple forms of pollution and socioeconomic hardship, while also ensuring strong community engagement and anti-displacement measures in plans.[77] Unlike other GGRF programs, the TCC maintained a narrow focus on the state's "most disadvantaged communities" during its first year, which SGC defined as communities containing a majority of census tracts within the top 5 percent of CES 3.0 results.[78] The community's remaining geographic area must consist of disadvantaged communities (defined as census tracts in the top 25 percent of CES 3.0 scores) and/or low-income communities as defined by AB 1550.

GREENHOUSE GAS REDUCTION FUND INVESTMENTS FOR DACS: BENEFITS AND CHALLENGES

According to the most recent figures as of June 8, 2018, the California Legislature has appropriated $6.1 billion to state agencies administering the Climate Investments' greenhouse gas reduction programs to date. [79] Five hundred eighty-nine projects totaling more than $2.2 billion have been funded. [80] Of that total, more than $1.2 billion has been invested in 327 projects that benefit disadvantaged communities and low-income residents, reducing more than 7.4 million metric tons of GHG emissions. [81] Ninety-eight percent of DAC tracts have received investment funds. [82]

The benefits to disadvantaged communities include:

- 4,100 affordable housing units
- 14,000 trees in urban communities
- 2,904 solar power systems for single-family homes
- Energy efficiency upgrades for 8,961 single-family homes
- Energy efficiency and/or solar power systems for 4,549 households in multifamily housing

ONGOING CHALLENGES TO MAXIMIZING CLIMATE INVESTMENTS IN DISADVANTAGED COMMUNITIES

Despite allocating significant investments to benefit DACs, several elements of the GGRF programs make it quite challenging for many environmental justice communities to access funds. The following issues, while specific to the GGRF programs, are relevant for many CalEnviroScreen uses in state policy.

Tightening the definition of "benefit": It is important to acknowledge that simply locating a project in or near a disadvantaged community does not ensure that tangible benefits are reaching residents with the highest needs. In other words, using CalEnviroScreen does not, by itself, ensure that a policy or program is providing actual protections and increased amenities for a DAC; the tool must be coupled with clear definitions and direction for how the policy or proposed projects will meet the needs of DACs or EJ communities within an area. Projects must also meet strong criteria that outline what, at a minimum, counts as a benefit. The GGRF and Active Transportation programs require project benefits to be "direct, meaningful, and assured," directly benefit a priority population, meaningfully address an important community or household need, demonstrate a significant benefit specific to the project type, and avoid substantial burdens on the community. [83]

Ensuring community access to investments: Numerous state agencies, each with separate requirements and grant cycles, administer the GGRF programs. Many of the grant applications are highly complex and time-intensive, requiring significant technical expertise that many small agencies do not have. Furthermore, nonprofit organizations, which should be eligible to apply for and administer programs on a community's behalf, aren't eligible for many GGRF funding sources. In recent years, the state Legislature has introduced a number of technical assistance bills to help small or disadvantaged communities apply for funding. However, to date, technical assistance grants are only available through the SGC and Department of Food and Agriculture's Healthy Soils Program. [84] The SGC has found that "applicants for projects that benefit disadvantaged communities were less likely to advance from the concept proposal to the full application stage without technical assistance." [85]

Safeguarding against unintended negative consequences: Another key issue for EJ communities is that projects can increase localized negative impacts, or maintain dubious climate benefits. Dairy digesters and ethanol plants, for instance, can increase local air pollution. In addition, investments for neighborhood revitalization can also lead to the displacement of longtime low-income residents and legacy small businesses as property values rise. [86] Displacement causes housing insecurity, can lead to public health issues, and disrupts the fabric of communities. It can also undermine our climate goals.

When displaced residents are forced to commute longer distances, it may increase emissions because of increased vehicle miles traveled. To combat these negative impacts, state and local agencies can prioritize actions that prevent a net loss of affordable housing in project areas and near public transit, [87] comply with model relocation and replacement requirements, and bolster local economies by training and employing local workers. The SGC's Affordable Housing and Sustainable Communities (AHSC) program guidelines award points to projects that include anti-displacement and local workforce development strategies. A comprehensive list of strategies is on pages 27–28 of the guidelines: http://sgc.ca.gov/programs/ahsc/docs/20171024-AHSC_16-17_Guidelines.pdf.

C. CALIFORNIA PUBLIC UTILITIES COMMISSION: DISADVANTAGED COMMUNITY FOCUS

CPUC regulates California's investor-owned electric and natural gas utilities (IOUs) and sets the rates utility customers pay, ensuring that rates are "reasonable and just." [88] CPUC administers a number of energy programs that target resources and benefits to low-income households and disadvantaged or EJ communities.

The Green Tariff Shared Renewables Program (GTSR), enacted by **SB 43 (Wolk, 2013)**, increases renewable energy access in California by allowing customers to meet their electricity needs through off-site renewable energy generation. [89] The program contains an "environmental justice reservation" that designates 100 MW of GTSR's 600 MW target for renewable energy projects in areas identified as the top 20 percent most disadvantaged CalEnviroScreen census tracts for each IOU service territory. [90] Despite these goals, however, advocates have raised concerns that the program has yet to successfully meet its targets by directing sufficient megawatts to DAC communities.

One CPUC program that has been structured to deliver benefits to DACs is **AB 693 (Eggman, 2015)**. Launched in 2018, the **Solar on Multifamily Affordable Housing (SOMAH) program** will award $100 million per year for 10 years to fund solar installations on multifamily affordable housing. To qualify, a multifamily affordable housing property must contain at least five rental housing units that are deed-restricted for low-income housing, [91] and must either be located in a DAC (defined as census tracts in the top 25 percent CES 3.0 scores) or have at least 80 percent of tenants with incomes at or below 60 percent of area median income. [92]

Similarly, **AB 523 (Reyes, 2017)** modified the **Electric Program Investment Charge (EPIC) program** in order to reserve more clean energy benefits for disadvantaged and low-income communities. The California Energy Commission (CEC) serves as one of four EPIC administrators to guide EPIC's grants for clean energy technology research, development, demonstration, deployment, and market facilitation. AB 523 requires at least 25 percent of EPIC's available funds for technology demonstration and deployment projects be located in and benefiting disadvantaged communities, with an additional 10 percent for low-income communities as defined by AB 1550. The bill also requires the CEC to consider and mitigate adverse localized health impacts of proposed projects to the greatest extent possible. [93]

As briefly mentioned above, CPUC has employed a unique approach for identifying DACs using CalEnviroScreen, by utilizing either a statewide or an IOU service area ranking. For example, during the proceedings to increase access to electric vehicles, eligible disadvantaged communities have been defined as "the top quartile of census tracts as identified by CalEnviroScreen on either a statewide or a utility-wide basis, whichever is broader." [94] Ranking CES data for the census tracts within IOU service areas enables IOUs to serve communities that may not otherwise be included in the top 25 percent of CES results statewide.

In addition to its programs targeting DACs, CPUC also administers various programs that serve low-income communities and households. One such program is the California Alternate Rates for Energy (CARE) low-income rebate program. CARE provides customers with a 30–35 percent discount on electric bills and a 20 percent discount on natural gas bills. [95] Customers qualify for CARE if: (1) their income is below designated thresholds; [96] or (2) they are enrolled in public assistance programs. [97] Similarly, the Single-Family Affordable Solar Housing (SASH) program and

PHOTO COURTESY OF ENVIRONMENTAL HEALTH COALITION.

RESIDENTS IDENTIFYING LAND-USE PLANNING CHANGES THAT CAN IMPROVE MOBILITY IN SAN DIEGO.

Multifamily Affordable Solar Housing (MASH) program provide financial incentives for installing solar on low-income households. [98]

D. CALIFORNIA DEPARTMENT OF TRANSPORTATION: ACTIVE TRANSPORTATION PROGRAM

California created the ATP in 2013. The program, housed in the Department of Transportation, consolidated existing federal and state transportation programs and added new program goals. The ATP aims to enhance public health and reach climate goals by increasing safety and mobility for non-motorized, active transportation modes such as biking and walking. At least 25 percent of funds for each ATP component program are set aside to fund projects that benefit disadvantaged communities, with another 2 percent set aside to fund active transportation plans predominantly in DACs. [99] As discussed above, the ATP defines DACs as either census tracts in the top 25 percent of CES scores, or using additional metrics as described in *Table 3, p. 21* (such as National School Lunch Program eligibility rates, being located within a federally recognized tribal land, etc). Both the ATP and the GGRF have adopted a strict definition of what constitutes a benefit to a disadvantaged community. A project is not presumed to provide a benefit to a disadvantaged community simply because it is located within one. Applicants "must clearly demonstrate, with verifiable information," how the project will provide a direct, meaningful, and assured benefit; significantly address an important community need; and avoid substantial burdens on a disadvantaged community. [100]

E. GENERAL PLAN ELEMENTS

In 2016, CEJA and the Center for Community Action and Environmental Justice (CCAEJ) were inspired by the successful adoption of General Plan EJ elements for the cities of National City and Jurupa Valley [101] to co-sponsor **SB 1000 (Leyva, 2016)**. The law requires juridictions (a city, a county, or a city and county) that have one or more disadvantaged communities to either adopt a standalone EJ element or integrate EJ goals, objectives, and policies into other elements of their General Plans. Previously, all General Plans in the state of California were required to include land use, open

space, conservation, housing, circulation, noise, and safety elements, while environmental justice elements or policies were considered optional.

SB 1000 requires identification of all disadvantaged communities within the area covered by the jurisdiction's General Plan. Local government agencies may choose to use CalEnviroScreen to identify DACs using CalEPA's definition of a DAC as the top 25 percent highest scoring CES 3.0 census tracts. However, SB 1000 also allows for use of other criteria and methods to identify DACs, which the statute defines as low-income areas that are "disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation." [102] The law defines a low-income area as containing household incomes at or below 80 percent of the statewide median income or at or below HCD state income limits. [103] (For an in-depth discussion of best practices for SB 1000 implementation, please see CEJA and PlaceWorks' *SB 1000 Implementation Toolkit*.)

Similar to SB 1000, the city of Los Angeles' **Mobility Plan 2035: An Element of the General Plan**, adopted in September 2016, utilizes CES to shape transportation decisions that promote safety, public health, equity, environmental justice, language and physical access, social benefits, and economic benefits in disadvantaged communities. Mobility Plan 2035 explains that the city will "use the Health Atlas, CalEPA's CalEnviroScreen tool data, Housing and Community Investment Department's socioeconomic data . . . and collision history data on pedestrian and bicyclist traffic-related fatalities and severe injuries to prioritize transportation decisions. . ." [104]

F. OTHER REGIONAL APPLICATIONS OF CALENVIROSCREEN

In addition to its statewide applications, CalEnviroScreen can also be used at the local and regional levels to inform long-range plans, target environmental protections and policy interventions, prioritize investments, and strengthen local community advocacy efforts.

For example, the National City-based Environmental Health Coalition was instrumental in getting the **City of San Diego Climate Action Plan (CAP)** to utilize CalEnviroScreen to equitably distribute investments and resources. San Diego will use the most recent version of the CalEnviroScreen tool and other methods to identify underserved communities, which it defines as "census tracts ranking in the top 30 percent of CalEnviroScreen scores." [105] As previously explained, in addition to using a statewide ranking, the Climate Action Plan allows underserved communities to be identified through *locally normalized* CES scores; that is, attained through a regional or local ranking of CES census tracts. [106]

The San Diego CAP prioritizes transit-oriented capital investments and climate resiliency improvements in "underserved communities." [107] The transit-oriented infrastructure will support bicycling, walking, and public transit, while the climate resiliency strategy, which aims to increase the urban tree canopy, will prioritize parks in underserved communities. [108] Demonstrating a commitment to transparency and accountability, San Diego will conduct annual "social equity reporting and monitoring." [109]

As part of the city's commitment to underserved areas, the Climate Action Plan also prioritizes projects located in (1) areas eligible for Community Development Block Grant funds; and (2) communities within a half-mile of affordable housing. [110]

PHOTO COURTESY OF LIBERTY HILL FOUNDATION.

V. ADVANCING ENVIRONMENTAL JUSTICE: ADDITIONAL WAYS TO USE CALENVIROSCREEN

CalEnviroScreen is instrumental in advancing California's responsibility "to promote equity and fair treatment of all people." [111] Without a strong cumulative impact tool, policymakers would find it difficult to assess the combined impacts of environmental and land use decisions on communities across the state. CalEnviroScreen allows decision-makers to quickly "move beyond the analysis phase so that problems are addressed, not just assessed." [112] The next step toward achieving environmental equity in California is the development of robust practices for integrating CES into decision-making processes at the state, regional, and local levels.

CalEnviroScreen can be utilized in land use planning and decision-making, permit approvals and renewals, regulatory inspections and enforcement actions, and solutions that achieve equitable growth and reduce harms in disadvantaged or EJ communities. CES can also be applied to policy interventions that fall outside of traditional environmental issues, such as housing and transportation. It can also be used to encourage the siting of municipal and community resources, including hospitals, fire departments, grocery stores, and community centers in or near underserved communities. For some of these contexts, policymakers may want to tailor CalEnviroScreen or use it in combination with other metrics to fit specific policy goals.

The following list of potential CalEnviroScreen uses is not exhaustive. CEJA encourages the creation of additional ways to integrate CalEnviroScreen into different policy applications in order to advance the goals of environmental justice and social equity.

A. LAND USE PLANS AND OTHER LONG-RANGE PLANNING DOCUMENTS

Environmental justice is inextricably tied to land use policy. Decisions about where to site locally unwanted land uses, infrastructure, and amenities raise issues of geographic, procedural, and social equity. While intentional discrimination in planning has historically been at the root of many problems, disparate impacts can also occur due to poor planning decisions, neglect, and lack of awareness. Key strategies to promote equitable land use, such as incorporating cumulative impact assessments and increasing community participation and agency coordination, can help to "illuminate and prevent unknown biases." [113]

Comprehensive land use planning (such as General Plans, community- or area-specific plans, conditional use permits, zoning, etc.) provides a number of opportunities for local government to prioritize much-needed public infrastructure, services, facilities, and improvements in disadvantaged communities. Long-term plans are also the appropriate place for assessing the complex ways in which housing, transportation, economic development, and environmental issues are intertwined. Equitable and sustainable development principles that emphasize the creation of integrated, multi-use neighborhoods that blend affordable housing with access to services, parks, and jobs can work hand in hand with strategies to protect overburdened residents.

Local governments can also use their broad land use authority to reevaluate zoning decisions that have adverse effects on disadvantaged communities, especially those that concentrate polluting industries in certain neighborhoods. For instance, rezoning to create "buffer zones" near existing sensitive land uses (e.g., schools and nursing homes, etc.) or sensitive receptors (e.g., populations with high asthma rates) can prevent the addition of new major polluting facilities. Municipalities can also consider incentive zoning to encourage public benefits like open space, child care, preservation of landmark structures, and other important amenities.

CalEnviroScreen can also offer a relevant analysis for one of the most important land use laws in California, the California Environmental Quality Act (CEQA). CEQA requires any public agency that either undertakes or approves a discretionary project to evaluate and, if feasible, mitigate its significant environmental impacts. [114]

Unless otherwise exempted, the public agency must prepare and consider a document, such as an environmental impact report (EIR), that describes the project's potential to generate environmental impacts.

In an EIR, CEQA requires an analysis of the proposed project's "cumulative impact." However, the definition of this term under CEQA differs greatly from the definition CalEPA adopted in 2005 as part of its EJ strategy. CEQA defines cumulative impact as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. [115] A cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. CEQA is concerned with the cumulative environmental impact of a proposed project, but only considers socioeconomic impacts to be significant environmental factors if they result in physical changes to the environment, such as business closures and physical deterioration of the community. [116]

Although a CalEnviroScreen score is not a substitute for CEQA's cumulative impact analysis, CalEnviroScreen can provide an analysis of a community's existing environmental burdens that is highly relevant to other CEQA requirements. CES scores can be used to help describe the baseline conditions of a project area's environmental setting — whether an impact is cumulatively considerable depends on the environmental setting of the project. CES also helps when evaluating a project's potential environmental impacts. The socioeconomic impacts of a proposed project can help to determine whether a physical change to the environment is cumulatively significant. [117] According to the CEQA guidelines, "If the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant." [118] Adverse impacts on disadvantaged communities, given their more vulnerable baseline, could be treated as significant impacts. Agencies can also utilize CES results to require mitigation measures in overburdened areas or to determine the need for and types of project alternatives. Moreover, a CES score can be an important source of information when considering a statement of overriding considerations in the event of significant and unavoidable impacts. [119]

However, while incorporating CES into an environmental

review can be a useful first step, effective prevention and mitigation measures as well as community benefits are critical to implementing environmental justice.

B. REGULATORY INSPECTIONS AND ENFORCEMENT

Facilities located in environmental justice or disadvantaged neighborhoods tend to experience inconsistent and/or lax regulatory enforcement and may even incur lower penalties for violations. This means that environmental justice communities may often experience a high concentration of facilities in addition to disproportionately high rates of noncompliance. [120]

To begin reversing this trend, environmental agencies can use CalEnviroScreen to flag communities within their jurisdiction for enhanced outreach and to prioritize actions, particularly unresolved enforcement issues, in those areas. For instance, in selecting enforcement actions to address violations of drinking water standards, agencies can prioritize violations at water supply systems that serve primarily DACs or areas with high rates of vulnerable populations such as children and the elderly. Agencies can integrate environmental justice into all aspects of the enforcement cycle and can increase the frequency of inspections and follow-up visits in disadvantaged communities. If funding or the number of inspectors are limited, agencies should prioritize actions in DACs where inspectors may be able to take advantage of opportunities to inspect multiple facilities during the same short period. However, it is important to note that excessive penalties can adversely impact small, local businesses within DACs. To ameliorate these impacts, compliance assistance, through educational and training opportunities that help small business learn about the law and implement best practices, can help reduce the number of inadvertent violations. [121]

Regulatory agencies can also seek remedies from enforcement actions that benefit DACs. [122] For example, under CalEPA's **Supplemental Environmental Projects (SEP) program**, permit violators may undertake projects that "improve, protect, or reduce risks to public health or the environment" in lieu of paying up to 50 percent of civil penalties. [123] A SEP must be a project that the violator is not otherwise legally mandated to do by federal, state, or local laws or regulations. The projects, however, must be related to the agency's enforcement responsibilities and should "reduce the environmental or health impact of the violation or the likelihood that such a violation will reoccur." [124] Permissible SEP projects include pollution reduction above and beyond regulatory requirements, emergency planning, pollution prevention, environmental restoration, and public health, but exclude general educational or public environmental awareness projects and projects unrelated to environmental protection. [125] As previously mentioned, AB 1071 (Atkins) requires each board and department within CalEPA to develop a SEP policy that benefits disadvantaged communities, solicit potential SEPs from disadvantaged communities, and consider the nexus between the violation and the location of any proposed SEP. [126]

Local governmental agencies, including building code inspectors, can also use CES to identify areas that are most in need of code enforcement. For example, Barrio Logan, a disadvantaged community in San Diego, faces serious air and water quality contamination while dealing with a proliferation of auto body shops that often violate city and state regulations. Community members have requested more frequent inspections by city and state officials to aid the community's cleanup and remediation efforts.

Finally, rather than continuing the status quo practice of single agency intervention, environmental agencies should increase coordination and collaboration to better address multiple sources of pollution. Agencies can conduct simultaneous inspections — for example, jointly examining a facility's air and water emissions — to expeditiously address DAC burdens. This strategy was affirmed during CalEPA's Environmental Justice Working Group's cross-media enforcement initiative in Fresno, in which "both enforcement staff and the regulated facilities reported that efficiencies were achieved through the concentrated, multi-media inspections conducted during the Fresno initiative." [127]

C. REGIONAL PERMITTING

In the same spirit as SB 673's mandate to DTSC, regional permitting agencies such as air districts and water boards should update their criteria for approving or denying permits to facilities that could overburden a disadvantaged/EJ community. Permitting agencies also need to improve notice requirements for projects that may impact disadvantaged communities, ensuring that notices are easily accessible, provided early

in the process, and are translated into locally relevant languages. Providing language interpretation services at public hearings is also often necessary to give community members an opportunity to have a meaningful voice in decisions that will impact them.

Regional air districts can use CES to identify disadvantaged areas for further evaluation with "more refined analyses of health risks." [128] For instance, some air districts may possess local community air monitoring results and other local air quality data that might not be available at the statewide level. Air districts may augment CES data with local air quality indicators to construct more in-depth analyses and targeted cleanup efforts. In the same vein, the Inland Valley-based CCAEJ has requested that the South Coast Air Quality Management District (SCAQMD) incorporate CES into the agency's local air quality assessments. Although SCAQMD's studies include pollution and socioeconomic indicators (such as ozone, PM2.5, and poverty, etc.), CCAEJ has asserted that CalEnviroScreen's more comprehensive cumulative impact analysis would better identify the neediest areas within the district.

In addition, a common challenge in environmental justice communities is that, while an individual toxic or hazardous facility may not have violated their operating permits or other regulations, there may still be a large number of polluting facilities in the area that produce a cumulative pollution burden. Although difficult to quantify, these communities suffer from the known impacts of long-term exposure to permissible local emissions. To reduce the inequitable concentration of local emissions in certain areas, regulatory agencies can establish strict census tract exposure thresholds and deny permits when a potential new facility would cause the neighborhood to exceed its limit — even if it would not cause the region as a whole to become noncompliant.

Agencies can integrate an environmental justice assessment into permit conditions, mitigation actions, and/or cleanup activities outside of permitting. Examples of using CalEnviroScreen for local and regional permitting decisions include:

- Requiring a cumulative impact or EJ assessment during the permitting process and adjusting permit conditions accordingly;
- Coordinating effective "mixed-media" enforcement efforts to reduce pollution from major sources located near DACs and enhance accountability;
- Establishing strict census tract exposure thresholds, placing more community-based monitors in overburdened communities, and denying permits where a new facility would cause the neighborhood to exceed its limit;
- Limiting concentrations of toxic or hazardous facilities in close proximity to DACs.

D. LOCAL AND REGIONAL ACCOUNTABILITY

CalEnviroScreen can also be extremely useful for community residents and other stakeholders that advocate on behalf of EJ communities. CalEnviroScreen's data and maps can be leveraged to hold decision-makers and administering agencies accountable and to demand policies that protect and enhance the health and well-being of our state's most impacted neighborhoods. Using locally specified thresholds to define a disadvantaged or an overburdened EJ community, advocates can push state and local leaders to avoid creating further harms in the communities that have already experienced high levels of pollution, related health problems, and divestment.

Leadership Counsel for Justice and Accountability has used CES to advocate for both increased benefits and protections in the Fresno area. The community-based organization has urged local governments to track city investments in sidewalks, streetlights, stormwater drainage, and other essential municipal infrastructure based upon the map of CES results. They have also used the tool's data to protest the siting of a new chemical warehouse in one of the city's long-standing EJ communities. Fresno's Jane Addams neighborhood has been dominated by polluting industrial facilities for decades and houses a landfill, factories, and numerous hazardous waste sites. In a presentation to the city council, community residents demonstrated, using CES maps, that the proposed new warehouse would be built in a highly disadvantaged community ranked in the top 100th percentile of CES 3.0 results. Residents asserted that a new warehouse would exacerbate the extremely poor air quality and negative health issues plaguing the area's residents.

Similarly, CEJA used CalEnviroScreen extensively during proceedings for the Puente Power Plant. In 2015, NRG Energy Inc. proposed to build the plant in the city of Oxnard, a low-income city with a majority

PHOTO BY CHRIS JORDAN-BLOCH, COURTESY OF EARTHJUSTICE.

COMMUNITIES CELEBRATE AFTER DEFEATING THE PUENTE POWER PLANT IN OXNARD.

Latinx population that is already home to three gas power plants. CEJA, the Central Coast Alliance United for a Sustainable Economy (CAUSE), and various allies waged and won a campaign to deny approval of the power plant. During testimony, CEJA used CES maps to show that the entire city of Oxnard is itself an environmentally disadvantaged community that is disproportionately affected by "environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation." Advocates also commented that the city contains many "areas with socioeconomic vulnerability." [129] The usage of CES in the proceeding was a key component that helped to defeat the proposed power plant.

PHOTO BY CAROLINA MARTINEZ.

VI. CONCLUSION

The widespread use of CalEnviroScreen in state and local policymaking is crucial to advancing environmental justice and equitable opportunities for all Californians. By revealing the extent of pollution impacts and socioeconomic stressors on local communities, the tool identifies California's overburdened communities and brings them to the forefront of policymaking. While CES cannot be applied to every policy or issue area, the tool nonetheless provides an important context for public policy. Using it, decision-makers from many issue areas can take steps to increase resources for historically neglected communities and provide greater protections that "lift the unfair burden of pollution from those most vulnerable to its effects." [130]

CalEnviroScreen continues to be one of the most far-reaching cumulative impact tools in the state and the rest of the nation. Building upon existing and potential opportunities to use the tool, CEJA recommends the following best practices for using CalEnviroScreen at the state, regional, and local levels:

- Utilize CalEnviroScreen to inform environmental permits, laws, policies, and programs. In particular, include CES in environmental decisions that can:
    - Reduce pollution in DACs;
    - Prioritize enforcement actions in longtime overburdened neighborhoods.
- Integrate CES into land use decisions such as General Plans or community plans, siting and permitting decisions, and zoning and land use changes.
- Use CES to continue directing important investments and improvements (such as renewable energy, energy efficiency, affordable housing near multimodal transit options, clean and efficient transit systems, and active transportation infrastructure, etc.) into highly impacted areas.

- Carefully match use of CES to the policy application, and, depending on the desired outcomes, tailor CES and/or combine it with other tools to best suit the policy context.
- Understand the science and methodology behind CalEnviroScreen, and utilize CalEPA's public process to explore any needed changes to the tool.
- Carefully define how programs and policies using CES will meet the expressed needs of disadvantaged communities, provide tangible and meaningful benefits, and avoid increasing harms.
- Strengthen and inform local grassroots EJ advocacy efforts through use of CalEnviroScreen maps, scores, and data to "make the case" for environmental justice interventions.

CalEnviroScreen continues to serve as an important environmental justice tool that can be strengthened and updated over time. CEJA is committed to advancing its use at the state, regional, and local levels to better identify and serve the needs of disadvantaged or EJ communities throughout California.

APPENDICES

APPENDIX A: A HISTORY OF CALENVIROSCREEN DEVELOPMENT

CALENVIROSCREEN DEVELOPMENT MILESTONES

- **1999:** SB 115 (Solís, 1999) defines *environmental justice*[131] based on the definition developed by the U.S. EPA. SB 115 names the Governor's Office of Planning and Research as the coordinating state agency for environmental justice. The law also requires CalEPA to align its mission, programs, policies, and standards with environmental justice, and develop an implementation framework for its boards, departments, and office (BDO).
- **2000–2001:** The Legislature establishes the Interagency Working Group on Environmental Justice (Working Group) — composed of the leaders of CalEPA BDOs and the Office of Planning and Research — and the Advisory Committee on Environmental Justice (EJ Advisory Committee) — composed of grassroots community advocates and other external stakeholders. The Working Group and EJ Advisory Committee are required to develop a strategy to identify and address gaps in CalEPA programs that may impede the achievement of environmental justice.[132]
- **2002–2003:** The EJ Advisory Committee sets goals and makes more than 100 recommendations to guide the Working Group in developing an EJ strategy and action plan, including a recommendation that CalEPA create a tool to assess cumulative impact.[133]
- **2004:** CalEPA adopts an *Intra-Agency Environmental Justice Strategy* in August and an Environmental Justice Action Plan in October.[134] The EJ Action Plan commits CalEPA to develop guidance on cumulative impact analysis, precautionary approaches, public participation, and capacity building.[135]
- **2005:** CalEPA approves a working definition of cumulative impact.[136] OEHHA is tasked with developing cumulative impact guidance. OEHHA focuses on the scientific basis for concern about cumulative impact and the technical methods for assessing it.
- **2008–2009:** The Cumulative Impacts and Precautionary Approaches (CIPA) Workgroup, composed of academics, environmental organizations, regulatory agencies, community groups, industry, and agriculture, convenes to help develop the cumulative impact framework.[137]
- **2010–2011:** In collaboration with the CIPA Workgroup, OEHHA publishes *Cumulative Impacts: Building a Scientific Foundation* in December 2010.[138] The groundbreaking report is the first to propose a cumulative impact metric for comparing environmental impacts in overburdened communities. OEHHA begins development of a screening tool to evaluate cumulative impact across the state.
- **2012–2013:** OEHHA publishes drafts of CalEnviroScreen for extensive public input before publishing CalEnviroScreen 1.0 in April 2013. SB 535 (De León) requires CalEPA to identify disadvantaged communities (DACs) based on geographic, socioeconomic, public health, and environmental hazard criteria.[139] CalEPA and its boards and departments begin using CalEnviroScreen to target environmental justice grants, promote compliance with environmental laws, prioritize site cleanup activities, and identify opportunities for sustainable economic development. CalEnviroScreen 1.1 is released September 2013.
- **2014–2015:** OEHHA releases CalEnviroScreen 2.0 in April 2014 and releases an update that incorporates data from the California-Mexico border in October 2014. CalEPA designates the top 25 percent of CalEnviroScreen 2.0 scores as DACs for SB 535 implementation. The California Climate Investments initiative begins directing millions of dollars to projects that benefit DACs.
- **2016:** AB 1550 (Gomez) is signed into law, requiring 10 percent of the California Climate Investments to target low-income communities, as defined, in addition to 25 percent for projects located in and benefiting DACs.
- **2017–2018:** CalEnviroScreen is increasingly used as a tool to advance environmental justice in state law and policy. CalEnviroScreen 3.0 is released in January 2017, and includes additional data from the U.S.-Mexico border per AB 1059 (E. Garcia, 2015). CalEPA designates the top 25 percent of CalEnviroScreen 3.0 scores as DACs in April 2017.[140]

APPENDIX B: CALENVIROSCREEN 3.0 INDICATORS

CalEnviroScreen scores are derived from the levels of specific indicators in each of California's census tracts. Indicators are selected for their ability to best represent the primary ***Pollution Burden*** and ***Population Characteristics*** categories. CalEPA also considers the availability and quality of data at the census tract level, among other criteria. [141]

The following information on CES 3.0 indicators comes from the *Update to the California Communities Environmental Health Screening Tool: CalEnviroScreen 3.0* report. The report is available online at: https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf.

POLLUTION BURDEN

Pollution Burden indicators are issues of widespread concern in California that CalEPA's boards, departments, and office can take action to remedy, and are divided into two categories: **Exposures** are pollutants that may come into direct contact with people, while **environmental effects** are adverse environmental conditions caused by pollutants. [142]

TABLE 4: CALENVIROSCREEN 3.0: DEFINITIONS OF POLLUTION BURDEN INDICATORS

POLLUTION BURDEN INDICATORS: EXPOSURES	
INDICATOR	**DESCRIPTION AND IMPACTS**
 **Ozone** [143]	Ozone is one of six criteria air pollutants and causes negative health consequences such as lung irritation, the worsening of cardiovascular and respiratory diseases, and increased mortality.
 **Particulate Matter 2.5 (PM2.5)** [144]	Particulate matter (PM) can originate from a variety of sources such as cars and trucks, industrial facilities, and wood burning. Fine particulate matter pollution causes heart and lung disease, and can lead to increased mortality.
 **Diesel Particulate Matter Emissions (Diesel PM)** [145]	Diesel particulate matter has been known to cause various health problems such as irritation to the eyes, throat, and nose; lung cancer; and cardiovascular and pulmonary disease.
 **Drinking Water Contaminants** [146]	Low-income and rural communities, especially those that utilize small community water systems, are more likely to be exposed to contaminated drinking water. Drinking contaminated water can lead to increased birth defects, miscarriages, and methemoglobinemia (blue baby syndrome), as well as higher lung and bladder cancer rates. It can also harm newborn development, and can increase one's risk of mortality.
 **Pesticide Use** [147]	Pesticide exposure can occur due to drift or volatilization of pesticides from agricultural fields, and tends to disproportionately affect farmworker communities in agricultural areas. Evidence has shown that high pesticides exposure is linked to acute pesticide-related illness and may be associated with chronic disease outcomes.

 **Toxic Releases from Facilities** [148]	Elevated levels of hazardous cancer-causing air pollutants have been found in areas where industrial facilities are sited. Accidental chemical releases can exacerbate pollution exposure and can lead to a wide variety of detrimental health problems.
 **Traffic Density** [149]	Traffic causes significant levels of air pollution in California. Vehicle exhaust contains a high number of toxic chemicals, including nitrogen oxides, carbon monoxide, and benzene, and contributes to the creation of photochemical smog. Health effects of concern from these pollutants include heart and lung disease, cancer, and increased mortality.

POLLUTION BURDEN INDICATORS: EXPOSURES

INDICATOR	DESCRIPTION AND IMPACTS
 **Cleanup Sites** [150]	Brownfield sites containing hazardous substances are areas that suffer from environmental degradation that can lead to severe health problems. While some sites may be undergoing cleanup actions by governmental authorities or by property owners, others may experience delays due to high costs, lawsuits, and concerns regarding cleanup.
 **Groundwater Threats** [151]	Hazardous waste storage and disposal sites can negatively impact soil, groundwater (drinking water), and air quality, leading to a wide array of negative health impacts.
 **Hazardous Waste Generators & Facilities** [152]	Hazardous waste is by definition potentially dangerous or harmful to human health or the environment. Potential health effects associated with living in proximity to hazardous waste processing and disposal sites include diabetes and cardiovascular disease.
 **Impaired Water Bodies** [153]	Contaminated and polluted lakes, rivers, and streams negatively affect drinking water sources, fishing, recreational opportunities, and local aquatic ecosystems. Low-income communities, communities of color, and tribes tend to be more dependent on the fish, aquatic plants, and wildlife for their daily living, and thus may be disproportionately negatively affected.
 **Solid Waste Sites and Facilities** [154]	Old, noncompliant, or abandoned solid waste disposal sites can release waste gases such as methane and carbon dioxide for decades after site closure. Exposure to landfill leachate can have adverse impacts on reproductive and respiratory systems.

POPULATION CHARACTERISTICS

Population Characteristics indicators represent demographic factors known to influence vulnerability to disease, and are divided into two categories: **Sensitive populations** are groups of people with *biological characteristics* that lead to increased vulnerability to pollutants, whereas **socioeconomic factors** are *community characteristics* that lead to increased vulnerability to pollutants.

TABLE 5: CALENVIROSCREEN 3.0: DEFINITION OF POPULATION CHARACTERISTICS INDICATORS

POPULATION CHARACTERISTICS: SENSITIVE POPULATIONS	
INDICATOR	**DESCRIPTION AND IMPACTS**
 Asthma [155]	Children, the elderly, and low-income communities tend to suffer from asthma at greater rates. Asthma is a chronic lung disease that is both caused by and worsened by pollutants. Exposure to traffic and outdoor air pollutants such as particulate matter, diesel exhaust, and ozone can trigger asthma attacks.
 Cardiovascular Disease [156]	Cardiovascular disease can lead to acute myocardial infarction (heart attack), or other heart problems, and is the leading cause of death both in California and the United States. Survivors of a cardiovascular event are highly vulnerable to future cardiovascular events, especially following short- or long-term exposure to particulate matter.
 Low Birth Weight (LBW) Infants [157]	Infants born weighing less than 5.5 pounds are at risk for chronic health conditions that may make them more sensitive to environmental exposures after birth. LBW is also considered a key marker of overall population health.
POPULATION CHARACTERISTICS: SOCIOECONOMIC FACTORS	
INDICATOR	**DESCRIPTION AND IMPACTS**
 Educational Attainment [158]	Evidence shows that higher levels of education can protect people from the negative health effects of environmental pollution. Education is an important social determinant of health.
 Housing Burdened Low-Income Households [159]	Housing cost and availability can affect one's health and well-being. High rent burden can mean a higher likelihood of postponing medical services for financial reasons and is associated with worse self-reported health conditions and higher stress levels.
 Linguistic Isolation [160]	A high degree of linguistic isolation, or difficulty speaking English, among members of a community can limit access to health information and public services, as well as ability to effectively engage with regulations. People with limited English are also less likely to receive regular medical care or mental health services.

 **Poverty** [161]	Studies show that communities in poverty are more likely than wealthy communities to experience negative health effects after exposure to environmental pollution. Wealth affects health status because it impacts living conditions, places of employment, nutrition, and access to health care and other resources.
 **Unemployment** [162]	Unemployment can lead to higher stress levels and worse health, and can force people to live in neighborhoods with higher levels of pollution and environmental degradation. Those who are unemployed tend to get sick at higher rates, lack access to health care and health insurance, and maintain higher mortality rates compared to those who are employed.

APPENDIX C:
CALENVIROSCREEN 3.0 — FREQUENTLY ASKED QUESTIONS

1. What is a cumulative impact assessment, and how does it compare to a risk assessment?

CalEnviroScreen looks at the impacts of pollution in communities by analyzing "factors that are not routinely included" in a risk assessment. [163] While the terms risk and impact are often perceived as synonyms, they don't have the same meaning. The term *risk* means a *probability of an injury or loss*, while *impact* in this context refers more broadly to *stressors that can affect health and quality of life*. [164] A cumulative impact assessment does not provide a quantitative approach to evaluating harm, but rather integrates quantitative factors with "others that may increase the magnitude of adverse effects" but are more difficult to measure or estimate. [165]

The cumulative impact assessment methodology used in CalEnviroScreen is based on several scientific principles:

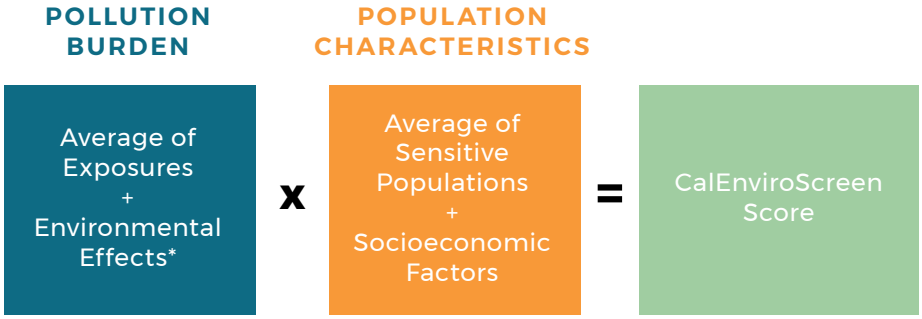
- Scientific research demonstrates that socioeconomic and other "sensitivity factors" are "effect modifiers" that can increase health risk by factors ranging from threefold to tenfold or greater, depending on the combination of pollutants and underlying susceptibilities. [166]
- Some members of the population (such as children or those with underlying health conditions) may be 10 times more sensitive to certain chemical exposures than others. "Risk assessments, using principles first advanced by the National Academy of Sciences, apply numerical factors or multipliers to account for potential human sensitivity (as well as other factors such as data gaps) in deriving acceptable exposure levels." [167]
- Various emergency response organizations have scored threats using the formula: "Risk = Threat × Vulnerability." [168]

2. What is the formula for determining the final or overall CalEnviroScreen score?

The data for each of the 20 indicators is calculated into a raw score and assigned a percentile ranking. The indicator percentiles are then averaged to calculate the Pollution Burden and Population Burden scores. (Environmental effects receive less weight because they measure the general "presence of pollutants in the community," not community exposures.) The two scores are then scaled and multiplied to derive the overall CalEnviroScreen score, expressed as a percentile ranking. [169]

FORMULA FOR CALCULATING CALENVIROSCREEN SCORE

After the components are scored within Pollution Burden or Population Characteristics, the scores are combined as follows to calculate the overall CalEnviroScreen Score:



**The Environmental Effects component is weighted one-half when combined with the Exposures component.*

Source: https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf

3. Why does CalEnviroScreen 3.0 use census tracts rather other geographical units such as ZIP codes or census blocks?

California's approximately 8,000 census tracts represent a "relatively fine scale of analysis." [170] Each census tract is further broken down into multiple census blocks. Scores are not calculated at the census block level, however, because some census blocks are unpopulated. Previous versions of CalEnviroScreen used ZIP codes as the unit of analysis. Although ZIP codes may be easier for the public to understand, there are only about 1,800 in California. In addition, census tracts: (1) have "more demographic data" available; (2) "are, on average, more uniform in population than ZIP codes"; and (3) "do not cross county boundaries, while ZIP codes frequently do." [171]

4. How is CalEnviroScreen 3.0 different from CalEnviroScreen 2.0?

CalEnviroScreen 3.0 has been updated to include the most recent data for each indicator and includes improvements for how some indicators are calculated. Detailed information about the updates is available here: https://oehha.ca.gov/media/downloads/calenviroscreen/document/ces3newinces3.pdf.

Changes to CES 3.0 from version 2.0 include: [172]

1. Addition of two new indicators: **Cardiovascular Disease**, a "health vulnerability indicator," and **Housing Burden**, a socioeconomic indicator that addresses "differences in housing costs across the state." [173]
2. An updated scoring method to balance the "contributions of the four major components of the CalEnviroScreen score." [174]
3. Removal of the "Age: Children and Elderly" indicator because it did not accurately measure the most vulnerable children and elderly across the state. Instead, children and elderly are highlighted in a separate analysis that includes demographic data, including race, for each census tract. "Excluding the Age indicator did not result in significant changes in the percent children, elderly, and different racial/ethnic groups of the most highly scoring census tracts." [175]
4. Additional data on several indicators for communities in the California-Mexico border region. The border-related changes are described here: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-data-update-border-region

5. What is OEHHA's process for updating CalEnviroScreen?

CalEPA and OEHHA have both demonstrated a commitment to incorporating public feedback during the ongoing process to update the CalEnviroScreen tool over time. As a result, the CalEnviroScreen tool has been improved to more accurately capture disadvantaged communities across the state in each version. Both CalEPA and OEHHA are open to receiving relevant research and suggestions for refining CalEnviroScreen. Before each version is finalized, OEHHA releases a draft version of the tool, holds public workshops across the state, and opens up a comment period to accept public comments. CalEPA and OEHHA aim to provide regular updates of the tool in order to make needed improvements and include the most current pollution and demographic data; however, the state Legislature may also direct OEHHA to initiate updates. For instance, the creation of CES 3.0 was partially motivated by the passage of AB 1059 (E. Garcia, 2015), which required OEHHA to incorporate pollution data for the areas along the U.S.-Mexico border upon the next update to CalEnviroScreen.

APPENDIX D: COMMON CALENVIROSCREEN MYTHS AND MISCONCEPTIONS

Despite numerous public resources, workshops, and meetings to inform people about the CalEnviroScreen tool and its many uses, significant misunderstandings continue to exist related to the tool's intended purpose and how it can be used in public policy.

MYTH #1: CalEnviroScreen determines the percentage of vulnerable communities that are considered "disadvantaged communities."

REALITY: CalEnviroScreen ranks all California census tracts based on a scientific assessment of cumulative impact. However, the tool itself does not determine which communities are deemed "disadvantaged." While CalEPA designated the top 25 percent highest scoring CES census tracts as disadvantaged communities for the purposes of SB 535 and AB 1550, other state and local policies have employed different definitions of DACs, including using a different CES percentage threshold. Disadvantaged communities should be defined using the most appropriate tools and methods to address a particular context.

MYTH #2: CalEnviroScreen should focus solely on socioeconomic and/or public health indicators that are a stronger measure of disadvantage.

REALITY: CalEnviroScreen was designed to be applied to issues that have an environmental nexus, since it was created to assist CalEPA and its boards, departments, and office in achieving their environmental justice mission. [176] SB 535 also requires disadvantaged communities to be "identified based on geographic, socioeconomic, public health, and environmental hazard criteria."[177] It should be noted, however, that CalEnviroScreen may not be useful for every policy or issue area. Alternative methods, such as using individual CES indicators or different tools, may be more appropriate for certain situations.

MYTH #3: Communities that are not designated as disadvantaged or low-income under AB 1550 are ineligible for the state's climate investment programs.

REALITY: The investment minimums for disadvantaged and low-income communities are roughly equivalent to their percentage of California's population. While some programs may exceed the minimums to achieve equitable results, most of the climate investment funds remain eligible to all areas of the state, regardless of DAC status.

MYTH #4: CES 3.0 lacks a cost of living indicator that can capture important economic vulnerabilities that many low-income households face.

REALITY: CalEnviroScreen 3.0 includes a "housing burdened low-income households" indicator that measures "the percent of households in a census tract that are both low income and severely burdened by housing costs." [178]

MYTH #5: If a region contains a relatively higher number of DAC census tracts compared to other regions in the state, it is more likely to receive funding from the Greenhouse Gas Reduction Fund (GGRF) to participate in California Climate Investments (CCI) programs.

REALITY: GGRF funding is awarded to innovative and high-quality project ideas that align with the goals of the CCI programs. Expertise, good planning, and a capacity to submit competitive grant proposals are all critical to receiving state funding. Unfortunately, some highly impacted DACs or EJ communities lack the resources or the technical expertise necessary to submit winning grant proposals, and are oftentimes unable to apply or be competitive for funding. According to data compiled by the Greenlining Institute, as of December 2017, the Bay Area, which contains 5 percent of the state's DACs for purposes of the CCI programs, has received an estimated 19 percent of implemented GGRF funds. Conversely, the Los Angeles region, which contains 53 percent of the state's DACs, has received only 33 percent of the implemented GGRF funds. The data illustrate that winning climate investment dollars is dependent on other factors beyond just the percentage of DAC census tracts within a region.

APPENDIX E: ADDITIONAL RESOURCES

The following resources provide in-depth information on how CalEnviroScreen works and its uses in state policymaking — including the California Climate Investments programs:

ABOUT CALENVIROSCREEN 3.0

CES 3.0 overall results and individual indicator maps:
http://oehha.maps.arcgis.com/apps/MapSeries/index.html?appid=8dad35dcd2274285874e60871c404edc

An overview of CES 3.0 indicators:
https://oehha.ca.gov/calenviroscreen/indicators

CES 3.0 Fact Sheet:
https://oehha.ca.gov/media/downloads/calenviroscreen/fact-sheet/ces30factsheetfinal.pdf

New in CalEnviroScreen 3.0: Changes Since Version 2.0:
https://oehha.ca.gov/media/downloads/calenviroscreen/document/ces3newinces3.pdf

Full CalEnviroScreen 3.0 report:
https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf

CalEnviroScreen 3.0 (Spanish version):
https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30-en-espanol-0

CalEnviroScreen Frequently Asked Questions (FAQs) — *updated as of Feb. 26, 2016:*
https://oehha.ca.gov/calenviroscreen/calenviroscreen-faqs

Using CalEnviroScreen:
https://oehha.ca.gov/calenviroscreen/how-use

THE GREENHOUSE GAS REDUCTION FUND PROGRAMS

California Greenhouse Gas Reduction Fund map:
arb.ca.gov/ccimap

California Climate Investments website:
http://www.caclimateinvestments.ca.gov/ and interactive project map: https://webmaps.arb.ca.gov/ccimap/

CARB's Annual Reports to the Legislature on the California Climate Investments:
http://www.caclimateinvestments.ca.gov/annual-report/?utm_medium=email&utm_source=govdelivery

TransForm's Climate Benefits for California website:
https://www.climatebenefitsca.org

AB 1550 Interactive Map of Disadvantaged and Low-Income Communities:
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm

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86. Stephanie Pollack, Barry Bluestone, and Chase Billingham, *Maintaining Diversity in America's Transit-Rich Neighborhoods: Tools for Equitable Neighborhood Change* (Dukakis Center for Urban and Regional Policy, 2010), available at http://nuweb9.neu.edu/dukakiscenter/wp-content/uploads/TRN_Equity_final.pdf.

87. TransForm and the California Housing Partnership Corporation, *Why Creating and Preserving Affordable Homes Near Transit is a Highly Effective Climate Protection Strategy* (2014) available at http://www.transformca.org/sites/default/files/CHPC%20TF%20Affordable%20TOD%20Climate%20Strategy%20BOOKLET%20FORMAT.pdf.

88. Public Utilities Code Section 728.
89. Public Utilities Code Section 2831 et seq.
90. Enrollment is capped at 600 megawatts (MW) statewide. Another sixth of the total 600 MW is reserved for residential customers, and 20 MW is reserved for the city of Davis.
91. Defined by Section 2852(a)(3)(A)(i) of the Public Utilities Code.
92. Defined in Health and Safety Code Section 50052.5.
93. Public Resources Code Section 25711.5.
94. See, CPUC Decisions: D.16-01-045, p. 138, and D.16-01-023, p. 41.
95. CARE/FERA Programs, http://consumers.cpuc.ca.gov/lowincomerates.
96. For example, a household of four must earn $49,200 or less per year.
97. Eligible public assistance programs include Medicaid/Medi-Cal; Women, Infants and Children Program (WIC); Healthy Families A & B, National School Lunch Free Lunch Program (NSL), Food Stamps/SNAP, Low Income Home Energy Assistance Program (LIHEAP); Head Start Income Eligible (Tribal Only); Supplemental Security Income (SSI); Bureau of Indian Affairs General Assistance; and Temporary Assistance for Needy Families (TANF) or Tribal TANF.
98. CPUC California Solar Initiative. http://www.cpuc.ca.gov/General.aspx?id=6043.
99. http://www.catc.ca.gov/programs/atp/2019/docs/051618_2019_ATP_Guidelines_Final_Adopted.pdf (pp. 3–4).
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115. CEQA Guidelines Section 15355.
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