

Concerns and Recommendations on CalEnviroScreen

Bay Area Air Quality Management District August 26, 2014

How CalEnviroScreen works

- CalEnviroScreen was developed by the Office of Environmental Health Hazard Assessment (OEHHA) at the request of CalEPA as a screening tool to help identify disadvantaged communities.
- The most recent version of the tool, CalEnviroScreen 2.0 (August 2014), includes data on 19 indicators (see table below) for all census tracts in California.¹
- Indicators are divided into two broad groups: a Pollution Burden group, which includes Exposure and Environmental Effects indicators, and a Population Characteristics group, which includes Sensitive Populations and Socioeconomic Factors indicators.
- OEHHA has presented five approaches (Methods 1–5) for combining these indicators to arrive at overall scores. OEHHA has also stated that they will consider other approaches.²
- The approach favored by OEHHA to date (Method 1) ranks each of the 19 indicators and then averages them within each of the two groups (Pollution Burden and Population Characteristics). The two averages are then multiplied to produce an overall score.

Pollution Burden		Population Characteristics	
<i>Exposure Indicators</i>	Ozone Concentrations PM2.5 Concentrations Diesel PM Emissions Drinking Water Quality Pesticide Use Toxic Releases from Facilities Traffic Density	<i>Sensitive Populations Indicators</i>	Children and Elderly Low Birth-Weight Births Asthma Emergency Departmental Visits
<i>Environmental Effects Indicators</i>	Cleanup Sites (1/2) Groundwater Threats (1/2) Hazardous Waste (1/2) Impaired Water Bodies (1/2) Solid Waste Sites and Facilities (1/2)	<i>Socioeconomic Factors Indicators</i>	Educational Attainment Linguistic Isolation Poverty Unemployment
×		= CalEnviroScreen Score	

- CalEPA has proposed that overall scores from the chosen method be compared to a threshold, such that tracts with scores above the threshold will be identified as disadvantaged communities. The top 10%, 15%, 20%, and 25% have been proposed as possible thresholds.

Proposed Use of CalEnviroScreen for Prioritizing Cap-and-Trade Funds

- Under the State’s Global Warming Solutions Act (AB 32), the California Air Resources Board (ARB) sells a portion of the greenhouse gas emissions permits (or “allowances”) at quarterly auctions under the Cap-and-Trade program. The ARB allocates the auction revenues to

¹ For more information on CalEnviroScreen and data sets used for the 19 indicators, see “California Communities Environmental Health Screening Tool, Version 2.0,” August 2014, online at <http://www.oehha.ca.gov/ei/ces2.html>.

² For more on Methods 1-5 for scoring within CalEnviroScreen, see “Approaches to Identifying Disadvantaged Communities,” August 2014, online at <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/workshops/calepa-approaches-to-identify-disadvantaged-communities-aug2014.pdf>.

projects that support AB 32 objectives.

- Revenues from Cap-and-Trade are projected to be approximately \$15 billion through 2020.
- Additional State legislation—SB 535 (2012) and SB 862 (2014)—directs the State to allocate a portion of the Cap-and-Trade funds toward projects that benefit disadvantaged communities.
- At least 10% of Cap-and-Trade funds must be spent *within* disadvantaged communities and at least 25% must be spent to *benefit* impacted communities.³ Much higher percentages are required for some programs, such as the Affordable Housing and Sustainable Communities Program and the Low Carbon Transit Operations Program.
- CalEnviroScreen has been nominated as the tool that ARB will use to identify disadvantaged communities. However, CalEnviroScreen was not designed for the purposes of SB 535, and critical details have yet to be determined, such as the scoring method and threshold used to determine disadvantage. These will be finalized by the Secretary of CalEPA in September 2014.
- Cap-and-Trade auction proceeds will help to fund projects such as:
 - Improved transit: enhanced bus service, electric commuter rail, and high-speed rail;
 - Zero- and low-emission cars, truck, and freight technology;
 - Housing upgrades and retrofits: energy system upgrades, better insulation, improved lighting, improved water-use efficiency, and urban tree planting; and
 - New affordable housing near transit centers.

Bay Area Air District Concerns

- The Bay Area Air Quality Management District (Air District) strongly supports prioritizing funding to disadvantaged communities. In fact, the Air District has set an example with its Community Air Risk Evaluation (CARE) program, which has prioritized funding for disadvantaged areas over the last six years.

Overlooked Communities

- While supporting the intent of SB 535, the Air District has serious concerns because CalEnviroScreen Methods 1–5 fail to identify many communities known to be disadvantaged. The problem is especially apparent in the Bay Area (see Figure 1 below). Communities with some of the highest poverty rates and greatest health burdens are not identified. For example, current approaches for scoring CalEnviroScreen indicators fail to identify:
 - Bay View/Hunter’s Point in San Francisco,
 - Portions of West Oakland adjacent to the Port of Oakland,
 - Portions of Richmond, and
 - Portions of San Jose.
- CalEnviroScreen Method 1 using a 20% threshold (Figure 1) identifies less than 3% of Bay Area census tracts as disadvantaged. Increasing the threshold to 25% would still only identify 5% of Bay Area census tracts as disadvantaged.

Scoring Approach

- If Methods 1–5 were applied, many census tracts in the Bay Area would not have overall scores in the top 20%, in spite of having serious health burdens that are in the top 20% statewide. This is true, for example, for asthma and low birth weight infants, which are the two health indicators included in CalEnviroScreen. Such communities would not be recognized

³ ARB’s draft Interim Guidance “Investments to Benefit Disadvantaged Communities, Draft for Comment” (August 22, 2014) is available online: <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/auctionproceeds.htm>

as disadvantaged by the State, and hence would not be prioritized for SB 535 funding and improvements. Yet surely these communities were intended to be included.

- For a census tract to have a top overall score under Methods 1-5, it has to score relatively high across each of CalEnviroScreen's 19 indicators. Areas that rank highest for some indicators, but relatively low for other indicators can be overlooked. Scoring within CalEnviroScreen should ensure that areas with top scores on a few indicators are represented.
- The Air District's concerns on CalEnviroScreen scoring are long standing, as expressed in our May 27, 2014, comment letter on CalEnviroScreen Version 2.
- The Air District's concerns are supported by the May 28, 2014, comment letter submitted to OEHHA by the Public Health Alliance of Southern California, who wrote, "Our analysis suggests that [CalEnviroScreen's] current weighting of variables, such as social determinants of health, under-represents factors strongly associated with public health disadvantage."

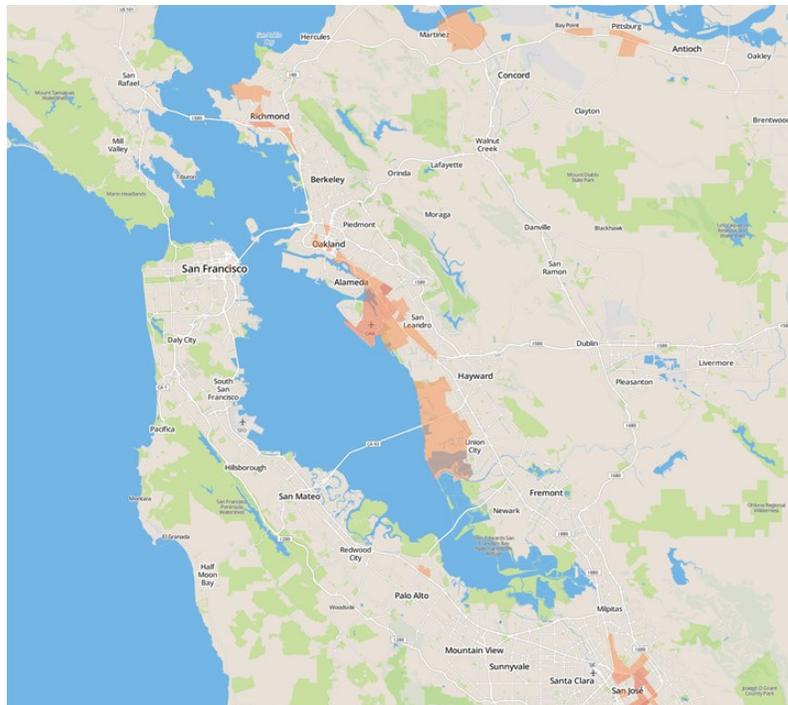


Figure 1. Applying Method 1 with a 20% threshold would result in fewer than 3% of Bay Area census tracts identified as disadvantaged.

Weighting of Indicators and Missing Data

- Methods 1–5 weight the Environmental Effects indicators by a factor of $\frac{1}{2}$. However, there is no scientific justification for weighting the Environmental Effects indicators and not weighting other indicators where information exists to guide the selection of relative weights. For example, many health studies have determined that exposure to diesel PM and proximity to traffic have much greater health impacts than exposure to ozone, yet these Exposure indicators all receive the same weight.
- The Poverty indicator within CalEnviroScreen does not account for significant regional differences in cost of living. Failing to take housing costs and costs of other essentials into consideration biases scores against low-income residents in regions with high living costs. SB

535 specifically mentions rent burden as a factor to consider, yet current indicators do not represent this burden.

- One of the CalEnviroScreen Pollution Burden indicators is Pesticide Use. However, data for this indicator only includes agricultural pesticide use. We know from scientific studies that urban residents—especially in poor, inner-city housing developments—can be exposed to pesticides at levels that can match the highest of those for rural residents. Yet urban areas receive a Pesticide Use score of zero because this indicator is missing data on urban pesticide use.

Air District Proposed Changes to CalEnviroScreen

Proposed Ranking Method

- The Air District has proposed a new method for scoring CalEnviroScreen data (Method 6) called the ranked product method. As in Methods 1–5, sub-scores are calculated for all census tracts from each of the same 19 indicators used in CalEnviroScreen. These values are then simply multiplied together.⁴
- Advantages of this method include:
 - It ensures that communities with high scores on a few indicators will be represented; and
 - It is used within the scientific community to score datasets with many ranked variables.
- Figure 2, compared to Figure 1, shows that Method 6 is more consistent with assessments of health disparities conducted by Bay Area⁵ health agencies and community groups compared to Method 1.

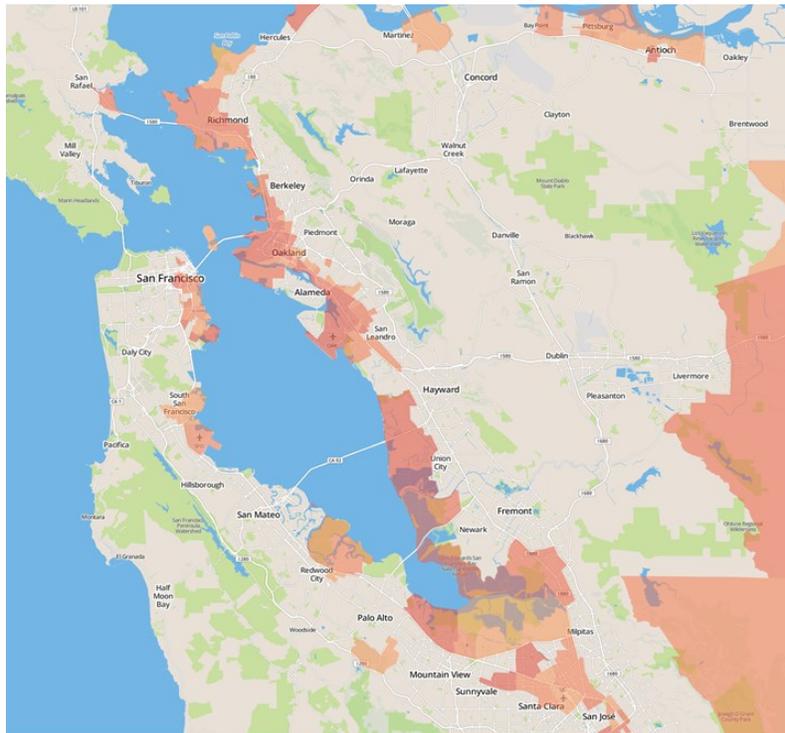


Figure 2. Top 20% of CalEnviroScreen scores from the proposed Method 6.

⁴ Percentiles are expressed as ranks, with number one being the top. Top 20% tracts have combined scores close to one.

⁵ Statewide scores are available on request.

Other Near-Term Recommendations

- Increase relative weights for Diesel PM Emissions indicators and Traffic Density indicators or remove ½ weights from Environmental Effects indicators.
- Supplement the Poverty indicator with a cost-of-living adjustment, and/or include a Housing Affordability indicator to take into account substantial cost-of-living differences with respect to housing affordability, namely the share of “rent burdened households,” which the Census Bureau defines as the percent of households that spend over 50% of their income on rent.
- Supplement the Pesticide Use indicator with urban pesticide exposure data, or drop the Pesticide Use indicator altogether.
- Set the threshold for determining disadvantage at the top 30%, rather than the top 20% or 25%. This will reduce the risk of overlooking disadvantaged communities.
- State agencies should form regional Investment Boards with representation from disadvantaged community members to help prioritize projects within their communities.

Longer-Term Recommendations

- To improve the allocation of Cap-and-Trade funding within disadvantaged communities in future years, it will be crucial for CalEPA to develop a formal process and a schedule for making improvements to CalEnviroScreen.
- The review process should include explicit comparisons between CalEnviroScreen and measures of public health disadvantage.