CENTER ON RACE, POVERTY & THE ENVIRONMENT

47 KEARNY STREET, SUITE 804, SAN FRANCISCO, CA 94108 TEL 415-346-4179 FAX 415-346-8723 WWW.CRPE-EJ.ORG
1302 JEFFERSON STREET, SUITE 2, DELANO, CA 93215 TEL 661-720-9140 FAX 661-720-9483

August 11, 2011

Via Electronic Submission

Chairman Mary Nichols
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments on 15-Day Modifications to Greenhouse Gas Cap-and Trade Regulation

Dear Chairman Nichols and Members of the Board:

The Center on Race, Poverty & the Environment ("CRPE") submits these comments on behalf of the undersigned organizations in opposition to the proposed cap and trade regulation. The proposed 15-day modifications do not cure the defects we identified in our comment letter dated December 14, 2010. Low-income California communities already bear a disproportionate share of California's environmental and public health burdens.[1] The modifications do not remedy the regulation's violation of AB 32 to avoid disproportionate impacts on low-income communities and communities of color. ARB's quest to reduce greenhouse gas ("GHG") emissions and to build upon California's tradition of environmental leadership both nationally and internationally should not come at the expense of these communities. The regulation continues to accept and promote the disparate and discriminatory treatment of the most vulnerable communities in our State.

In addition, the modifications negatively impact California's economy. The modifications do not remedy the regulation's failure to capitalize on the opportunity to create well-paying green jobs in California and fuel a green economic revolution. The regulation forgoes the economic and public health benefits from in-state reductions, favors out-of-state reductions from virtually unlimited offsets, and creates a vastly complicated and unproven mechanism – cap and trade – that will likely fail to deliver on AB 32's ultimate goal of reducing GHG emissions in a thoughtful and equitable manner by 2020. Questions about the efficacy,

[1] *See* Manuel Pastor, Rachel Morello-Frosch, James Sadd, and Justin Scoggins, *Minding the Climate Gap,* http://college.usc.edu/pere/documents/mindingthegap.pdf. *Attached to CRPE's December 14,2010 Comment Letter as Exhibit 1.*

fairness, and economic soundness of this cap and trade regulation have been posed by various organizations, including the Legislature, and the modifications do not address any of these questions.

ARB should halt development and implementation of this modified cap and trade regulation until questions about the appropriateness of a cap and trade system to meet all the requirements of AB 32 can be answered.

I. ARB SHOULD HALT FURTHER DEVELOPMENT AND IMPLEMENTATION OF THE CAP AND TRADE REGULATION UNTIL IT COMPLETES A MEANINGFUL ALTERNATIVES ANALYSIS

ARB continues along two irreconcilable tracts by working on the Supplemental Functional Equivalent Document for alternatives to the Scoping Plan while also continuing to develop and modify the Cap and Trade Regulation. It is impossible to perform a meaningful and good-faith alternatives analysis that will inform the Board's decision making, when ARB simultaneously develops and implements the very plan for which it is supposedly reviewing alternatives. This basic fact, which seems to escape ARB, is obvious to the Superior Court, the Legislative Analyst's Office (LAO), and the public.

The Superior Court concluded:

> Continued rulemaking and implementation of cap and trade will render consideration of alternatives a nullity as a mature cap and trade program would be in place well advanced from the premature implementation which has already taken place. In order to ensure that ARB adequately considers alternatives to the Scoping Plan and exposes its analysis to public scrutiny prior to implementing the measures contained, the Court must enjoin any further rulemaking until ARB amends the FED in accordance with this decision.[2]

The LAO recommended that the Legislature direct ARB to halt work on the regulation until ARB completed and presented to the Legislature an analysis of alternatives to cap and trade.[3] The LAO reasoned:

> It appears to us, however, to be premature to continue development of the [cap and trade] program before the analysis is complete, as the analysis, if done comprehensively and meaningfully, should usefully inform what role, if any, a cap-and-trade program should play in meeting AB 32's goals. Regardless of the court order, we think that it is important for ARB to conduct such analysis to ensure that the mix of measures to address AB 32's goals maximizing cost-effectiveness as required by AB 32.… The cap-and-trade program is a significant part of the AB 32 Scoping Plan. There are numerous policy considerations

[2] Order Granting In Part Petition for Writ of Mandate, March 17, 2011, 35:4-9. Attached as Exhibit 1.

[3] *See* Summary of LAO Findings and Recommendations on the 2011-12 Budget, http://www.lao.ca.gov/laoapp/budgetlist/PublicSearch.aspx?PolicyAreaNum=22&Department_Number=-1&KeyCol=429&Yr=2011. Attached as Exhibit 2.

associated with its implementation, and, as such, proceeding with its implementation before completing the analysis discussed above is premature.[4]

Continuing to develop this regulation while, at the same time, claiming to analyze potential alternatives is disingenuous. ARB should not continue modifying and developing this regulation until it performs a good faith and meaningful analysis of alternatives. Given that the modification seeks to push the compliance obligation back to 2013, ARB has no excuse as to why it can't stop and review alternatives that will get better reductions, enhance California's economy, and fairly reduce greenhouse gases and co-pollutants across all California communities.

II. ARB'S PROCESS VIOLATES CEQA

On December 16, 2010 the Board passed resolution 10-42 to approve the cap and trade regulation. The Board did not respond to public comment before it approved and instead directed the Executive Officer to evaluate and prepare responses.[5] It directed the Executive Officer to make modifications, hold public workshops, make the necessary CEQA finding, and take final action to adopt the proposed regulation.[6] While final adoption is delegated to the Executive Officer, the Board has approved the regulation without requiring to see the final "adopted" regulation unless the Executive Officer determines it is warranted. Thus, the Board has not completed its required environmental review before approving the project. This process violates CEQA.[7] The purpose of requiring written responses before a decision is made is to ensure that the Board "…will fully consider the information necessary to render decisions that intelligently take into account the environmental consequences. It also promotes the policy of citizen input underlying CEQA. When the written responses are prepared and issued after a decision has been made, however, the purpose served by such a requirement cannot be achieved."[8]

Since the Board's adoption in December 2010, there have been five workshops to discuss various components of the Cap and Trade regulation.[9] The current modifications are supposed to address some of the public's concerns voiced during these workshops, and include modifications adopted in the December Resolution. The largest and most concerning modifications push back emission reductions until 2013 and exempt "waste-to-energy" facilities.

---

[4] *Id.*

[5] ARB Resolution 10-42, December 16, 2010, p. 10 ¶ 3.

[6] *Id* at ¶¶ 1-6.

[7] *See Rural Land Owners Ass'n v. City Council* (1983) 143 Cal.App.3d 1013, 1021 ("[CEQA's] informational purpose cannot be served if the required information is not received and disseminated by a local agency until after it has reached a decision."); *Mountain Lion Foundation v. Fish & Game Comm.* (1997) 16 Cal.4th 105, 122 ("[a]s part of the CEQA review process, an agency that proposes to carry out a discretionary project must provide written responses to significant environmental objections prior to the agency's final decision." (citations omitted))

[8] *Mountain Lion Foundation*, 16 Cal.4th at 133 (citations omitted).

[9] *See* http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm#publicmeetings

The resolution allows the Executive Officer to modify the regulation that was before the Board in December 2010 within his discretion, without limits, and without requiring the Board to review the final regulation before it is approved. Instead, the Executive Officer, who is not a public official, reviews and responds to public comments on the modifications and determines whether the regulation should be presented to the Board for further consideration.[10] Given the complexity and the enormous impact and reach of the modified rule, the Board, not the Executive Officer, must review, respond to comments, and make a final decision.

Finally, the modified cap and trade regulation released on July 7, 2011 is different enough from the version that the Functional Equivalent Document was based upon that it must be recirculated and go through another EIR process before it can be approved in accordance with CEQA.[11] CEQA does not allow the Board to delegate the review of an EIR to the Executive Officer.[12] Because of the failure to complete environmental review before approving the project as well as the substantial modifications to the rule that require recirculation, the full Board must complete the legally-required environmental review process before approving this rule.

III. THE REGULATION CONTINUES TO FLOUT THE LETTER AND SPIRIT OF AB 32

The original regulation failed to meet the criteria set out by AB 32 for market-based compliance mechanisms, and the modifications do not cure these defects.[13] AB 32 requires that before the Board can adopt a market-based compliance mechanism, such as cap and trade, it must:

> (1) consider the potential for direct, indirect and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely affected by air pollution;
>
> (2) design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants; and
>
> (3) maximize additional environmental and economic benefits for California, as appropriate.[14]

The proposed modifications do not remedy the fact that the regulation threatens communities with more air pollution and fails to take the opportunity to generate green jobs in California and stimulate California's economy.

---

[10] Resolution 10-42, p. 10 ¶ 2.

[11] 14 CCR § 15088.5 (new information may include changes in the project); Courts apply the same recirculation standard when new information surfaces before the EIR is certified but not added to the EIR. *See e.g. Save our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 131

[12] 14 CCR § 15025(b).

[13] *See* CRPE comments on Greenhouse Gas Cap and Trade Regulation, December 14, 2010, incorporated by reference here. Attached as Exhibit 3.

[14] Health and Safety Code section 38570(b).

ARB has still not adopted a methodology for identifying disproportionately impacted, low-income communities in California. Without a screening method it is impossible for ARB to evaluate whether this regulation will have localized impacts in communities already adversely impacted by pollution. It is unacceptable to take a wait and see approach, when determining the impact of cap and trade on vulnerable communities. To comply with AB 32, ARB must identify and analyze all environmental justice communities in California before implementing any market-based mechanism, including this regulation.[15]

The modifications do not correct the fact that the regulation does not prevent localized or disproportionate impacts or reduce emissions. Due to the program's flexibility, ARB cannot predict where emission reductions will occur or if they will occur at all. Entities could easily buy credits and offsets and not reduce any emissions. ARB cannot rely on the Clean Air Act as a backstop to prevent increased co-pollutant impacts when new or modified major stationary sources (that are also facilities subject to the cap and trade regulation) increase hazardous air pollutant or criteria pollutant emissions in a community because section 112 (regulating HAPs) and New Source Review (as codified in Part D of Title I of the Clean Air Act) allow increases in emissions because MACT or BACT (LAER) do not require zero emissions. Rather, the Clean Air Act's MACT and BACT technology based emissions limits allow for increases. Moreover, under New Source Review, a major stationary source purchases offsets to mitigate the pollution not reduced by BACT under an almost identical scheme as cap and trade: the major source buys offsets from another source in the air basin and the local community gets stuck with the increase in criteria pollutant emissions.[16] The California Clean Air Act likewise does not require zero emissions of toxic or criteria pollutant emissions for new or modified stationary sources.

Lastly, the modified regulation continues to fail to achieve maximum environmental and economic benefits for California, as required by AB 32. Under the modifications, compliance with the program doesn't begin until 2013. Since the "cap" begins at a business as usual amount, there are no reductions required that year. Offsets and free allowances provide no economic benefits for California. Under the regulation, entities can use out of state offsets to meet their emission reduction requirements. This sends green jobs, and the environmental benefit of the reductions, out of the state of California. In addition, agricultural emissions, a major greenhouse gas contributor, are still not regulated. Nothing in the modifications changes these fundamental flaws in the regulation.

IV. CONCLUSION

For the reasons set forth above, ARB should not continue to develop, modify, or implement the cap and trade regulation. Instead, the undersigned organizations ask ARB to halt all work on the regulation until a meaningful alternatives analysis can to be done and the Board can decide whether cap and trade is the best way to achieve maximum reductions, while boosting

[15] As in CRPE's December 2010 comment letter, we continue to recommend the Environmental Justice Screening Method. *See "Playing it Safe: Assessing Cumulative Impact and Social Vulnerability through an Environmental Justice Screening Method in the South Coast Air Basin, California,"* International Journal of Environmental Research and Public Health, attached as Exhibit 4.

[16] *See, e.g.* San Joaquin Valley Air Pollution Control District Rule 2201, South Coast Air Quality Management District Regulation XIII; *see also* 42 U.S.C. §§ 7503, 7511a.

California's green economy and being mindful of California's already over-burdened communities. If ARB refuses to discontinue developing the cap and trade regulation, then it must recirculate the FED and have the final language of the regulation go back to the Board for review, response to comments, and final decision.

Sincerely,

/s [electronically submitted]

Sofia L. Parino, Senior Attorney
Center on Race, Poverty & the Environment

Tom Frantz, President
Association of Irritated Residents

Maria S. Covarrubias, Secretary
Comité ROSAS

Salvador Partida, President
Committee for a Better Arvin (CBA)

Domitila Lemus, President
Comité Unido de Plainview

Ruth Martinez, President
Comité Si Se Puede

Maria Buenrostro, Secretary
Comité Luchando por Frutas y Aire Limpio

Ana Maria Ceballos, President
La Voz de Toniville

Penny Newman, Executive Director
The Center for Community Action and Environmental Justice (CCAEJ)

Teresa DeAnda
El Comité Para El Bienestar de Earlimart

Linda MacKay, President
TriCounty Watchdogs

Gary Lasky, Sprawl and Air Quality Chair
Sierra Club Tehipite Chapter

Jesse N. Marquez, Executive Director
Coalition For A Safe Environment

Shabaka Heru
Society for Positive Action

Angela Johnson Meszros

Caroline Farrell

Strela Cervas, Co-Coordinator
California Environmental Justice Alliance (CEJA)

SUPERIOR COURT OF CALIFORNIA

COUNTY OF SAN FRANCISCO

ASSOCIATION OF IRRITATED RESIDENTS, an unincorporated association; CALIFORNIA COMMUNITIES AGAINST TOXICS, an unincorporated association; COMMUNITIES FOR A BETTER ENVIRONMENT, a nonprofit corporation; COALITION FOR A SAFE ENVIRONMENT, a nonprofit corporation; SOCIETY FOR POSITIVE ACTION, an unincorporated association; WEST COUNTY TOXICS COALITION, a nonprofit corporation ANGELA JOHNSON MESZAROS; CAROLINE FARRELL; HENRY CLARK; JESSE N. MARQUEZ; MARTHA DINA ARGUELLO; SHABAKA HERU; TOM FRANTZ; in their individual capacities,

Petitioners and Plaintiffs,

vs.

CALIFORNIA AIR RESOURCES BOARD, MARY D. NICHOLS, in her official capacity as Chairman of the Board; and DANIEL SPERLING, KEN YEAGER, DORENE D'ADAMO, BARBARA RIORDAN, JOHN R. BALMES, M.D., LYDIA H. KENNARD, SANDRA BERG, RON ROBERTS, JOHN G. TELLES, RONALD O. LOVERIDGE, in their official capacities as Members of the Air Resources Board,

Respondents and Defendants.

Case No. CPF-09-509562

STATEMENT OF DECISION:

ORDER GRANTING IN PART PETITION FOR WRIT OF MANDATE

Judge: Hon. Ernest H. Goldsmith
Dept: 613

This Petition for Writ of Mandate came on regularly for hearing pursuant to notice before Hon. Ernest H. Goldsmith on December 19, 2010. Petitioners were represented by Alegria De La Cruz, Esq. and Brent Newell, Esq. of the Center on Race, Poverty and the Environment, and Adrienne Bloch, Esq. of Communities for a Better Environment. Respondents were represented by Mark Poole, Esq. and David Zonana, Esq. of the Office of the Attorney General of California. The Court issued a Tentative Statement of Decision on January 24, 2011, to which Petitioners and Respondents submitted objections. The Court has considered the oral argument and the pleadings and objections submitted by the parties, and issues this Statement of Decision granting in part Petition for Writ of Mandate.

BACKGROUND

In 2006, the California Legislature passed the Global Warming Solutions Act of 2006 ("AB 32") in response to the dangers posed to California's environment by the release of man-made Greenhouse Gases ("GHGs"). Health and Safety Code ("HSC") § 38500 *et seq.* The Legislature designed this landmark statute to place California "at the forefront of national and international efforts to reduce emissions of greenhouse gases." *Id.* at § 38501(c). AB 32 tasks the California Air Resources Board ("ARB") with preparing and approving a Climate Change Scoping Plan to create a regulatory path for reducing GHG emissions to 1990 levels by the year 2020. *Id.* at §§ 38501(a), 38550. AB 32 describes the process to be followed by ARB in creating and implementing the Scoping Plan, and includes provisions for enforcement. *Id.* at §§ 38560-38574, 38580.

Petitioners challenge ARB's implementation of AB 32, asserting that ARB failed to meet the mandatory statutory requirements of AB 32 and the California Environmental Quality Act ("CEQA") by essentially treating the Scoping Plan as a *post hoc* rationalization for ARB's already chosen policy approaches. In the first portion of this case, Petitioners argue that in approving the Scoping Plan, ARB violated AB 32 by: (1) excluding whole sectors of the economy from GHG emissions controls and including a cap and trade program without determining whether potential reduction measures achieved maximum technologically feasible and cost effective reductions; (2)

failing to adequately evaluate the total cost and total benefits to the environment, economy and public health before adopting the Scoping Plan; and (3) failing to consider all relevant information regarding GHG emission reduction programs throughout the United States and the World, as required by AB 32, prior to recommending a cap and trade regulatory approach.

The CEQA portion of this case involves Petitioners' challenge to the Functional Equivalent Document ("FED") prepared by ARB pursuant to its certified regulatory program. The FED was prepared to evaluate the environmental consequences associated with the Scoping Plan. Petitioners claim that ARB violated both CEQA and ARB's own certified regulatory program in preparing and certifying the FED by: (1) failing to adequately analyze the impacts of the measures described in the Scoping Plan; (2) failing to adequately analyze alternatives to the Scoping Plan; and (3) impermissibly approving and implementing the Scoping Plan prior to completing its environmental review.

In response to Petitioners' allegations, ARB asserts that it scrupulously complied with each of its statutory duties under AB 32 and each of its obligations under its certified regulatory program and CEQA by conducting a programmatic review of the Scoping Plan. ARB characterizes Petitioners' claims as an attack on policy decisions made by ARB, particularly the decision to include cap and trade as part of the preferred suite of chosen measures.

Petitioners have opted to merge two separate and distinct challenges to ARB's implementation of AB 32. First, Petitioners allege that ARB improperly interpreted and failed to comply with AB 32. ARB acts in a quasi-legislative capacity in interpreting and effectuating legislation. Accordingly, the Court has applied an arbitrary and capricious standard of review affording great deference to the agency in its interpretation of AB 32's substantive mandates. The Court denies the Petition for Writ of Mandate to direct ARB to revise the Scoping Plan for the reasons stated herein.

Second, Petitioners' allegations that ARB violated CEQA are reviewed by the Court pursuant to an abuse of discretion standard of review. The Court grants the Petition and issues a Peremptory Writ of Mandate commanding ARB to set aside its certification of the FED and

enjoining the implementation of the Scoping Plan until ARB has come into complete compliance with its obligations under its certified regulatory program and CEQA, as described herein.

DISCUSSION

I. PETITIONERS' CHALLENGES UNDER AB 32

A. STANDARD OF REVIEW

The degree of deference courts accord to an administrative agency's action depends on whether the action is classified as quasi-legislative or interpretive. (*Yamaha Corp. of America v. State Board of Equalization* (1998) 19 Cal.4th 1, 12 ("*Yamaha*").) In *Yamaha*, the Court described the two-step process to be followed when reviewing quasi-legislative administrative actions. (See *Id.* at pp. 10-11.) First, the Court must determine whether the rule in question lay within the lawmaking authority delegated by the Legislature. (*Id.* at p. 10.) In making that determination, the Court, not the agency, has final responsibility for the interpretation of the law under which the regulation was issued. (*Id.* at p. 11 fn. 4.) However, if the Court finds that the Legislature intended to delegate interpretive authority to the administrative agency, or if the agency possesses special "expertise" with regard to the legal or regulatory issues, the Court should defer to the agency's interpretation. (*San Francisco Fire Fighters Local 798 v. City and County of San Francisco* (2006) 38 Cal.4th 653, 670; *Yamaha*, supra, at p. 11.)

Once the Court is satisfied that the rule is within the scope of authority conferred, the Court must determine whether the rule is reasonably necessary to implement the purpose of the statute. (*Yamaha*, supra, 19 Cal.4th at p. 11.) Here, the Court's review is confined to the question whether the classification is arbitrary, capricious or without reasonable or rational basis. (*Ibid.*)

Here, ARB's task under AB 32 is to create and implement the Scoping Plan to "create a regulatory path for reducing GHG emissions to 1990 levels by the year 2020." (HSC § 38550.) AB 32 directs ARB to achieve this overall statutory goal through the use of "maximum technologically feasible and cost-effective reductions," but leaves the specifics of how to do so, and how to balance a variety of competing concerns, up to the agency. (HSC §§ 38560.5.)

Furthermore, AB 32 expressly requires ARB to implement measures ARB "finds are necessary or desirable" to achieve GHG emission reductions in the Plan. (HSC § 38561(b).)

Additionally, while the ultimate goal is to reduce emissions under AB 32, ARB must utilize agency discretion to "minimize costs and maximize the total benefits... encourage early action... not disproportionately impact low-income communities... receive appropriate credit for early voluntary reductions... not interfere with efforts to achieve... air quality standards... consider cost-effectiveness... consider overall societal benefits... minimize the administrative burden... minimize leakage." (HSC § 38562(b).)

Accordingly, the Court finds that the Legislature intended to delegate to ARB the authority to interpret the GWSA and develop a set of measures to achieve AB 32's multiple substantive goals. The Court will therefore defer to ARB's interpretation of AB 32's substantive mandates unless it finds that the agency's actions are arbitrary, capricious or without reasonable or rational basis.

B. DISCUSSION

1. MAXIMUM TECHNOLOGICALLY FEASIBLE AND COST-EFFECTIVE REDUCTIONS

AB 32 directs ARB to prepare a scoping plan "for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020." (HSC § 38561(a).) In furtherance of achieving this goal, AB 32 charges ARB to "identify and make recommendations on direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and non-monetary incentives for sources and categories of sources that the state board finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of GHG emissions by 2020." (HSC § 38561(b).)

Petitioners allege that ARB's analysis of the maximum technologically feasible and cost effective measures is defective in three ways: (1) ARB improperly used AB 32's statewide emissions limit as a "floor" for measures in the Scoping Plan; (2) ARB failed to create criteria to

determine the cost effectiveness of the measures included in the Scoping Plan; and (3) ARB excluded the agricultural and industrial sectors from regulations. As discussed below, Petitioners challenge ARB's exercise of its statutory authority and discretion in compiling the measures in the Scoping Plan.

a. Petitioners Argue that the Scoping Plan Improperly Used the Statewide Emissions Limit as the Target for the Amount of Reductions to Be Achieved

HSC section 38550 requires: "[b]y January 1, 2008, the state board shall. . . determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level to be achieved by 2020." This limit is to "remain in effect unless otherwise amended or repealed" and ARB is directed to "make recommendations to the Governor and the Legislature on how to continue reductions" by 2020. (HSC § 38551.) ARB set the state emissions limit at 427 MMTCO2E. (ARB026697.) AB 32 defines the "statewide emissions limit" as the "maximum allowable level of statewide GHG emissions in 2020." (HSC § 38505(n).)

Petitioners claim that the "maximum allowable" emissions level sets the minimum amount of reductions required to achieve the goal, not the maximum reductions allowed. Thus, ARB ignored its charge to make a Plan for achieving maximum technologically feasible reductions and instead placed an artificial limit on the amount of reductions the individual measures of the Scoping Plan can achieve.

When determining the rules and regulations for achieving the maximum technologically feasible and cost effective GHG emissions reductions pursuant to HSC § 38561 it was appropriate for ARB to use the state greenhouse gas emissions limit established pursuant HSC § 38550 as a guide. ARB indicates throughout the Scoping Plan and the FED that it anticipates that the measures included in the Plan will put California on a path towards an 80 percent reduction by 2050. (See, e.g., ARB026700, 26713, 26673, 27508.) It was not arbitrary and capricious or without reasonable rational basis to set standards pursuant to HSCS 38561.

b. Petitioners Argue that ARB Failed to Identify Clear Criteria for Determining Cost-Effectiveness of all Maximum Technologically Feasible Measures

HSC section 38561(d) deals with the evaluation of costs from the Scoping Plan:

> The state board shall evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California's economy, environment, and public health, using the best available economic models, emission estimation techniques, and other scientific methods.

ARB's approach for analyzing cost-effectiveness, the "Cost of a Bundle of Strategies" approach, is set forth on pages 84 and 85 of the Scoping Plan. (ARB026769-26770.) ARB describes this strategy as analyzing the cost effectiveness of each of a number of methods to reduce GHG, thereby establishing a range of cost effectiveness. A method within the range would be satisfactory. (ARB010181.)

Petitioners claim the "Cost of a Bundle of Strategies" approach is flawed because ARB determined the costs only of its chosen measures and used those measures to establish the range of cost-effectiveness. This error results in the inability to make sound policy decisions and to evaluate the cost-effectiveness of specific measures. Instead, ARB should have established the range of cost-effectiveness before it chose its preferred measures.

ARB chose the "Cost of a Bundle of Strategies" approach after evaluating a number of alternative approaches discussed in a white paper prepared by ARB staff, which was the subject of a public workshop held on June 3, 2008. (ARB010177-010242.) After analysis, staff concluded that the "Cost of a Bundle of Strategies" approach was the best way to determine cost-effectiveness in the Scoping Plan. (ARB010181-010185, 010190.) This decision was supported by The Natural Resources Defense Council, Union of Concerned Scientists, Environmental Defense Fund, Coalition for Clean Air, Californians Against Waste, Center for Energy Efficiency and Renewable Technologies, California Wind Energy Association, and the Nature Conservancy. (ARB010324-010332.) HSC section 38561(d) requires an evaluation of the potential costs of the plan as a whole and not, as Petitioners argue, an individual examination of every measure and alternative ARB chose to pursue or not to pursue.

Petitioners have failed to show Respondents method for determining cost-effectiveness is contrary to statutory authority. The Court concludes that ARB's exercise of its discretion with regards to its chosen approach was not arbitrary and capricious.

c. Petitioners Argue that ARB Improperly Excluded the Agricultural and Industrial Sectors from Regulations

AB 32 requires ARB to prepare and approve a Scoping Plan "for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020." (HSC § 38561(a).) ARB must exercise its expertise and discretion to identify and recommend a blend of:

> direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives for sources and categories of sources that the state board finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020. (HSC § 38561(b).)

Petitioners first allege that ARB failed to include direct emissions reduction measures from the agricultural sector without finding that existing technologies and policies already in use were not feasible or cost-effective. In relying on voluntary reductions, ARB fell short of AB 32's legislative mandate to facilitate maximum reductions.

ARB analyzed the potential for emissions reductions from the agricultural sector, eventually determining that reducing emissions from agriculture is problematic because it is a sector comprised of complex biological systems, diverse source types and a complex life cycle analysis. (ARB005292, 5296-5302.) This decision was confirmed by the work conducted by the Economic and Technology Advancement Advisory Committee ("ETAAC") and the Agricultural Working Group. (ARB001576.) Additionally, the Governor's Climate Action Team estimated that 82 percent of the greenhouse gas emissions from agriculture involve biological processes associated with complex agro-ecosystems for which there is a substantial gap in scientific knowledge and existing data. (ARB033775-33776.) As a result of the uncertain science, ARB elected to rely primarily on "economic incentives such as marketable emissions reduction credits,

favorable utility contracts, or renewable energy incentives" and included a methane capture measure to encourage investment in manure digesters at large dairies. (ARB026752.) "Monetary incentives" are one of the categories of measures specified under HSC § 38561(d). Thus, under the plain language of AB 32, ARB's decision to proceed with an "incentive" approach is not an exclusion of the agricultural sector.

Therefore, Petitioners are incorrect in their claim that ARB excluded the agricultural sector from consideration for identification and recommendation of emission reductions measures. Pursuant to an arbitrary and capricious standard of review, the Court finds that exclusion of mandatory measures for the agricultural sector should not serve as the basis for invalidating the Scoping Plan.

Next, Petitioners argue ARB should have identified and recommended the maximum technologically feasible and cost-effective emissions reduction measures in the industrial sector. Petitioners note that while the Scoping Plan proposes direct emissions reduction measures that result in reduction, they claim more significant reductions were available that were both technologically feasible and cost-effective. Petitioners support this position by citing to Public comments made on the October 28, 2008 Proposed Scoping Plan. (ARB023459-60.)

The Scoping Plan does include direct emission reduction measures, and also includes the industrial sectors sources that emit over 25,000 tons of carbon dioxide equivalent per year in the cap and trade program. (ARB026715.) Although Petitioners criticize reliance on cap and trade, it is not for the Court to make factual determinations as to one method for GHG control versus another. Petitioners are incorrect that ARB "excluded" the industrial sector from regulations. Its decision to pursue a mixture of regulations passes an arbitrary and capricious standard of review.

2. CAP AND TRADE

The Scoping Plan must facilitate the "achievement of the maximum feasible and cost effective reductions of greenhouse gas emission by 2020." (HSC § 38561(b).) ARB included a cap and trade program among the comprehensive slate of emission reduction measures in its Scoping Plan. Under a cap and trade program, the "cap" creates a limit on the total emissions

from a group of regulated sources, and generally imposes no particular limits on emissions from any given firm or source. (ARB021872; (Stavin, "A Meaningful U.S. Cap-and-trade System to Address Climate Change." 32 Harv. Envtl. L. Rev. 293, 298 (2008).) The "trade" aspect of the program allows the transfer or sale of permits ("allowances") between the regulated businesses. (*Id.*) If an individual source does not emit an amount equal to the amount of allowances it has, it may bank them for future use or sell them to another source that emitted the pollutants in question above the prescribed limits. (*Id.*)

Petitioners argue that although AB 32 allows ARB to include a market-based compliance mechanism in the Plan such as cap and trade, that mechanism is allowed only to the extent that it "facilitates the achievement of the maximum feasible and cost effective reductions of greenhouse gas emission by 2020." (HSC § 38561(b).) Therefore, ARB must determine whether the reductions from the cap and trade program will likely achieve reductions that are at least the equivalent to those that could be achieved through direct regulation.

As a preliminary matter, Respondents argue that this issue is moot because Petitioners failed to properly plead it. A petition, like a civil complaint, serves to frame and limit the issues and to apprise the defendant of the basis on which the plaintiff seeks recovery. (See *Hughes v. Western MacArthur Co.* (1987) 192 Cal.App.3d 951.) Respondents argue that Petitioners relied on two definitional sections of the HSC in making this challenge, sections 38505(b) and 38505(k)(2), yet failed to cite to these sections in their First Amended Petition.

While it is true that Petitioners did not cite those specific sections of the HSC in the First Amended Petition, Petitioners properly plead their challenge to ARB's inclusion of cap and trade and banking system by citing to the requirements in HSC section 38561(b), which require that measures and mechanisms recommended facilitate the achievement of maximum feasible and cost-effective reductions. (FAC ¶¶ 104, 110.) Petitioners also properly challenged ARB's decision to join the Western Climate Initiative's ("WCI") system. (FAC ¶ 110.) Petitioners' reference to sections 38505(b) and 38505(k) in their opening brief were simply to compare AB

32's alternative compliance with the market mechanism requirements. Thus, Petitioners properly plead this challenge.

As to the merits of Petitioners' claim, HSC section 38561(b) defers to ARB the ability to identify and make recommendations on those measures it "finds are necessary or desirable to facilitate" the achievement of A.B. 32's objectives. As the agency with technical expertise and the responsibility for the protection of California's air resources, ARB has substantial discretion to determine the mix of measures needed to "facilitate" the achievement of greenhouse gas reductions. (ARB026672, ARB026694.) Contrary to Petitioners argument, HSC section 38561(b) does not express a preference for the type of regulation to achieve AB 32's goals, whether it be direct or indirect.

Furthermore, HSC section 38505(k)(2) defines a "market based compliance mechanism" to include "banking" or other mechanisms "that result in the same greenhouse gas emission limit or reduction, over the same time period, as direct compliance with greenhouse gas emission limit or emission reduction measure adopted by the state board pursuant to this division." By referencing "direct compliance" in the definition of § 38505(k)(2), the legislature anticipated overlap between market-based mechanisms and direct regulatory measures adopted by ARB and provided that the market-based mechanisms should accomplish at least the same reductions as the adopted measure. There is no indication that the Legislature imposed a requirement on ARB to compare market-based mechanisms and potential direct regulatory measures in the Scoping Plan. This issue is separate from the CEQA imposed mandates to analyze alternative methods of GHG control methods. The statute does not support the argument that ARB must demonstrate that cap and trade will result in the same reductions as any direct regulation.

Petitioners argue that the reference to "banking" in HSC section 38505(k)(2) requires that a comparison must be conducted between banking and direct regulations. Banking does not alter or change the quantity or timing of reductions under any direct emissions measures adopted by ARB, and thus, meets the requirements of § 38505(k)(2).

Finally, Petitioners argue ARB's decision to rely primarily on cap and trade for reducing GHG emissions conflicts with ARB's own description of its regulatory approach to include "complementary measures directed at emission sources that are included in the cap and trade program." (ARB026704.) With the decision to use cap and trade as the main vehicle by which emissions will be reduced, ARB skipped the determination that no other mechanisms facilitate the achievement of maximum feasible and cost-effective emissions reductions. (ARB020836; 020842.) This argument speaks to analysis and consideration of alternate methods of GHG reduction as mandated by CEQA.

However, ARB has not completely avoided reliance on direct emission reduction measures and non-cap-and-trade reductions measures. In ARB's Scoping Plan, greenhouse gas reductions are projected to come from nearly twenty non-cap-and-trade measures. (ARB026702.) ARB found in the Scoping Plan that cap-and-trade was "necessary or desirable to facilitate the maximum feasible and cost-effective reductions" by finding that a cap-and-trade program works to compliment "direct regulations" to reduce emissions in the "capped sectors." (ARB026700-01.) Given the latitude of ARB's quasi-legislative powers, it is within its discretion, right or wrong, in interpreting AB 32, to choose cap and trade as the primary methodology.

3. PUBLIC HEALTH AND ENVIRONMENTAL ANALYSIS

Among the requirements that AB 32 imposes on ARB in preparing the Scoping Plan is a requirement that ARB:

> evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California's economy, environment, and public health, using the best available economic models, emission estimation techniques, and other scientific methods. (HSC § 38561(d).)

Petitioners assert that ARB's Public Health Analysis (Appendix H to the Scoping Plan) violates this provision. Petitioners allege that ARB's evaluation failed to comply with AB 32 in two ways: (1) ARB did not analyze the public health or environmental impacts of the voluntary or incentivized reductions; and (2) ARB's public health evaluation of its cap and trade and regulatory approaches was conclusory and incomplete.

Petitioners argue that AB 32's mandate to evaluate the "total" potential economic and noneconomic costs and benefits commands ARB to evaluate the entire economic and non-economic costs and the entire benefits of the proposed Scoping Plan measures. Further, in order to understand the total potential environmental benefits, ARB must also evaluate all of the potential environmental impacts of AB 32 implementation. Respondents argue this goes too far, and the Court agrees.

The plain language of section 38561(d) indicates that the statute requires ARB to evaluate the total costs and benefits of "the plan" itself. The time for ARB to analyze all the costs and benefits of particular measures will be when ARB takes action to adopt such measures. (See HSC § 38562.) This is not to suggest that ARB has license to explain every shortfall in its plan by claiming it is in the program level stage and detail awaits project level planning and review.

However, AB 32 requires broad analysis of total potential costs and total potential economic benefits of the plan but calls for more detailed consideration and analysis of the impacts on low income communities, the impacts on achieving air quality standards, societal benefits and other factors in the staff report of each proposed measure. (See HSC § 38562, (b)(2), (b)4 and (b)(6).)

a. Public Health and Environmental Impacts of the Voluntary or Incentivized Reductions Measures

ARB chose to include voluntary measures in the Scoping Plan, such as reducing agricultural emissions. (ARB026752.) Petitioners argue, however, that ARB did not provide any evaluation of whether or not its decision not to mandate agricultural emissions reductions would disproportionately impact low-income communities, interfere with efforts to comply with ambient air quality standards, or maximize other co-benefits. Without this evaluation, ARB cannot conclude that this is the best policy choice for AB 32 implementation.

However, Respondents counter that the administrative record contains evidence that ARB analyzed the costs and benefits of potential voluntary or incentivized measures for agriculture. ARB helped established the Agricultural Working Group that analyzed issues pertinent to

identifying and controlling greenhouse gas emissions from the agricultural sector. (ARB020826.) Beyond the references to agriculture in Appendix H and the FED, the record includes a document called "The Agriculture Sector Summary and Analysis." (ARB 033775 – 033862.) This document provides the Agricultural Working Group's analysis of the sector, including evaluation of the feasibility of mandating reductions as opposed to proposing voluntary or incentivized measures. Ultimately, ARB proposed a voluntary approach for the agricultural sector reasoning that it is a sector composed of complex biological systems, diverse source types, and complex life-cycle analysis. (ARB033776.)

However an examination of the Agricultural Working Group's document "The Agriculture Sector Summary and Analysis" (ARB 033775 – 033862) reveals that the health evaluation merely consists of two sentences:

> It is anticipated that most of the proposed emission reductions measures for the agricultural sector will also reduce criteria pollutants such as NOx, ammonia, volatile organic compounds (VOCs) and participate matter (PM) PM10 and PM2.5. The operation of engines use for digesters and additional biomass facilities may increase air emissions and require mitigation. (ARB33782.)

In the analysis of voluntary and incentivized measures for the agricultural sector, the record does not demonstrate that ARB used the best available models as required by AB 32. (HSC §38561(d).)

b. Public Health Evaluation of Cap and Trade

Petitioners assert that ARB's analysis of the costs and benefits of direct regulatory and cap and trade approaches was in violation of HSC § 38561(d). Petitioners argue that in evaluating the public health impacts of AB 32, ARB only analyzes impacts on the State, the South Coast Air Basin, and the City of Wilmington. (ARB021519-021525, ARB021534-021559.) ARB limited its examination of air quality benefits to four sectors: Electricity, Fuel Combustion, Transportation Fuels, and Industry. (ARB021536-37.) ARB further limited analysis by focusing only on criteria air pollutants, such as NOx and fine particulate matter, and by not including toxic air contaminants. (ARB021534-37.) This limited public health analysis is sharply contrasted by

the detailed economic analysis ARB conducted in the Scoping Plan. With respect to direct regulations, ARB did not specifically assign emission reductions to individual facilities or transportation corridors. (ARB021519.) ARB also admitted its estimations of statewide emissions reductions were uncertain. (ARB021519.) Petitioners assert ARB had the ability to estimate specific emission reductions and potential impacts from throughout the state and in other regions, but failed to do so and that not including this analysis deprived decision-makers and the public of important information in weighing total costs and benefits.

Respondents correctly assert that ARB's economic analysis does not establish any requirement or standard against which to measure the public health analysis. Section 38561(d) calls for ARB to conduct its analysis "using the best available economic models, emission estimation techniques, and other scientific methods."

ARB's examination of air quality benefits was not limited to the sectors listed by Petitioners, but also covered: water (ARB027323-325), recycling and waste management (ARB027327-329), forests (ARB027329-330), high GWP gases (ARB027330-333) and agriculture (ARB027333). AB 32 does not specify that analyses must be quantitative – as a result, when it was not possible to quantify air quality benefits, a qualitative description of the potential benefits was provided.

ARB staff did limit the health benefits analysis associated with improvements in air quality to the four main sectors of the Scoping Plan, which are responsible for approximately 92% of emissions for the current year and an estimated 86% of emissions in 2020. (ARB020832.) Two reasons were cited for this: (1) ARB was only able to quantify emission reductions from these four sectors; and (2) ARB's method of calculating changes in health outcomes resulting from improvements in air quality is based on concentration-response functions from epidemiology studies conducted in urban areas. The main sources of pollution in urban areas are: electricity, fuel combustion, transportation fuels, and industry. The Court cannot find that focusing the analysis on these four sectors was inadequate under the statute.

Petitioners also allege ARB also failed to evaluate the potential disparate impacts of cap and trade as part of AB 32 implementation. EJAC urged ARB to pay particular attention to preventing disproportionate impacts (ARB011736-38, 012014, 020771), and that ARB made no attempt to analyze disproportionate impacts to communities living closest to the facilities eligible to participate in the cap and trade system. On the contrary, ARB assumes in its public health analysis that cap and trade will result in a 10% reduction in fuel combustion by sources in the South Coast and Wilmington. (ARB021539.) Also, cap and trade is linked to Western Climate Initiative, which is comprised of other Western states and two Canadian provinces. ARB cannot assure that the reductions will take place in California, much less in the South Coast or Wilmington areas. (ARB020813.)

Petitioners' assertions are inaccurate inasmuch as ARB staff analyzed the impacts of the cap and trade program, in conjunction with other measures in the Scoping Plan, in Wilmington, a low-income community with a multitude of sources. (ARB027401.) One factor in choosing this community is that it had a number of large industrial sources that were likely to be subject to any future cap and trade regulation. ARB assumed emission reductions from cap and trade and other measures could occur in a low income community like Wilmington to illustrate the potential impacts of a cap and trade regulation and other Scoping Plan measures. However, ARB staff made clear that their analysis showed that the benefits of these emission reductions would mostly likely occur outside the community. As Appendix H states: "co-benefit emission reductions in the study area [Wilmington] would produce regional health benefits. A relatively small portion of these benefits would occur in the study area..." (ARB027412.)

In sum, Petitioners' criticisms of Appendix H are overbroad. While there may be flaws in the analyses, Petitioners fall short of demonstrating that ARB was arbitrary and capricious in violation of Section 38561(d).

4. CONSIDERATION OF ALL RELEVANT INFORMATION REGARDING OTHER GHG REDUCTION PROGRAMS

HSC section 38561(c) provides that ARB "shall consider all relevant information pertaining to greenhouse gas emission reduction programs in other states, localities, and nations, including the northeastern states of the United States, Canada, and the European Union." (HSC § 38561(c).)

Petitioners claim ARB failed to consider the performance of Cap and Trade programs in other states, localities, and nations. ARB did not consider problems in other programs such as over allocation, monitoring and equivalence, innovation, verifiability, accounting practices, additionality, and public participation, or the extent to which these challenges have been overcome in other programs. (ARB023431-023436.) ARB also did not consider these issues in light of cap and trade as the primary framework for achieving reductions. Furthermore, ARB used other examples of cap and trade programs only to justify cap and trade. (ARB021227-30.) Most of the other programs failed in reducing emissions, but ARB offered no evidence that the failure of these programs could be overcome.

Respondents counter that HSC § 38561(c) gives ARB discretion to determine what information to consider regarding other GHG programs, by providing a non-exclusive list of programs and leaving the determination of "relevance" to ARB. In general, a direction to "consider" information, as here, is presumed to have been performed absent evidence to the contrary. (Cal. Code. Evid., § 664 ("It is presumed that official duty has been regularly performed.").) Section 38561(c) does not dictate the content of the Scoping Plan – the requirements for the content of the Scoping Plan are set forth in the prior section of AB 32, HSC § 38561(b). Petitioners base their argument on selected excerpts of a single appendix to ARB's Scoping Plan. A review of the full record, including the entire Scoping Plan, demonstrates that ARB did not abuse its discretion and gave consideration to problems experienced in other cap-and-trade programs and incorporated solutions recommended by national experts. (See Respondents' Brief, 27: 1-16.) ARB's written Responses to Public Comments on the Functional

Equivalent Document consider and address the same criticisms of existing cap-and-trade programs that Petitioners raise. (See ARB027650-55.) Additionally, ARB conducted at least one workshop and one board meeting specifically devoted to consideration of other jurisdictions' programs to reduce GHG's. (See ARB005372 and ARB005389-404 [January 16, 2008 Workshop]; ARB009541-010174 [May, 28 2008 Board Meeting].) Petitioners may disagree with ARB's conclusions, however the essential analyses were performed.

The Court agrees that Respondents' interpretation that Section 38561(c) leaves the determination of "relevance" to ARB is overbroad. However, the record provides sufficient evidence to demonstrate that ARB at least met its responsibilities under Section 38561(c).

C. CONCLUSION

In summary, ARB's plan to effectuate AB 32 survives challenge by Petitioners given ARB's quasi-legislative authority and the wide latitude afforded the agency under the arbitrary and capricious standard of review. Accordingly, the Petition for Writ of Mandate commanding ARB to revise the Scoping Plan is denied.

II. PETITIONERS' CHALLENGES UNDER CEQA

A. STANDARD OF REVIEW

In a mandate proceeding to review an agency's compliance with CEQA, the Court reviews the administrative record to determine whether the agency abused its discretion. (*California Sportfishing Protection Alliance v. State Water Resources Control Bd.* (2008) 160 Cal.App.4th 1625, 1644.) Abuse of discretion is shown if (1) the agency's determination is not supported by substantial evidence, or (2) the agency has not proceeded in a manner required by law. (*Ibid.*)

The substantial evidence standard of review is applied to the agency's factual determinations. (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 117-118.) For purposes of CEQA, substantial evidence means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Cal. Code Regs, tit. 14, § 15384, subd. (a) (hereafter Guidelines).) "Argument, speculation,

unsubstantiated opinion or narrative, [or] evidence which is clearly erroneous or inaccurate ... does not constitute substantial evidence." (*Ibid.*)

By contrast, questions concerning the proper interpretation or application of the requirements of CEQA are matters of law. (*Save Our Peninsula Committee*, supra, 87 Cal.App.4th at p. 118.) "When the informational requirements of CEQA are not complied with, an agency has failed to proceed in 'a manner required by law' and has therefore abused its discretion." (*Ibid.*; Pub. Resources Code, §§ 21168.5, 21005, subd. (a).)

The FED is presumed legally adequate, however (*Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729, 740; Pub. Resources Code, § 21167.3.), and the agency's certification of the EIR is presumed correct (*Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 530.) Petitioners therefore bear the burden of proving that the FED is legally inadequate and that the agency abused its discretion in certifying it. (*Ibid.*; see also *Al Larson Boat Shop*, supra, at p. 740.)

In reviewing an agency's actions under CEQA, the court must bear in mind that "the Legislature intended the act 'to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 (hereafter *Laurel Heights*).) "If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees." (*Id.* at p. 392.) "The EIR process protects not only the environment but also informed self-government." (*Ibid.*) "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its sufficiency as an informative document." (*Ibid.*)

B. DISCUSSION

1. CERTIFIED REGULATORY PROGRAM

State regulatory programs that meet certain environmental standards and are certified by the Secretary of the Natural Resources Agency are exempt from CEQA's requirements for

preparation of EIRs. (Pub. Resources Code, § 21080.5; Guidelines, §§ 15250-15253.) Environmental review documents prepared under the agency's own regulations are used instead of the documents that would be required by CEQA. (Pub. Resources Code, § 21080.5, subd. (a); Guidelines, § 15250.) When conducting its environmental review and preparing its documentation, a certified regulatory program remains subject to other provisions of CEQA, including CEQA's broad policy goals and substantive standards. (Guidelines, § 15250; *City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1422.) These include the duties to identify a project's adverse environmental effects, to mitigate those effects through adoption of feasible alternatives or mitigation measures, and to justify its action based on specific economic, social, or other conditions. (See *Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1228, 1230-1231). Thus, the documentation required of a certified program essentially duplicates what is required for an EIR. (See *Citizens for Non-Toxic Pest Control v. Department of Food & Agriculture* (1986) 187 Cal.App.3rd 1575, 1586.) The CEQA Guidelines governing the contents of EIRs do not, however, directly apply to an environmental document prepared by a certified program. (*City of Arcadia*, supra, 135 Cal.App.4th at p. 1422.)

The documentation prepared under a certified program must address the "significant or potentially significant effects" that a project might have on the environment. (Guidelines, § 15252, subd. (a)(2); *City of Arcadia*, supra, 135 Cal.App.4th at p. 1422.) Alternatives to the proposed activity must also be described. (Pub. Resources Code, § 21080.5, subd. (d)(3)(A).) Just as for EIRs, environmental documents prepared by certified programs must use scientific and other empirical evidence to support their conclusions. (See *Ebbetts Pass Forest Watch v. California Dept. of Forestry and Fire Protection* (2008) 43 Cal.4th 936.)

The standard of review applicable to a challenge to a certified program's environmental documentation is the same as that applied to an EIR. (*California Sportfishing Protection Alliance*, supra, 160 Cal.App.4th at p. 1644.) The court makes a limited inquiry into whether the agency prejudicially abused its discretion; abuse of discretion is established if the decision was not based on substantial evidence in the record or if the agency did not proceed in the manner

required by law in approving the environmental document. (*Ibid.*) In the absence of contrary evidence in the record, the court will assume that the agency complied with its official duties under the program. (*City of Sacramento v. State Water Resources Control Bd.* (1992) 2 Cal.App.4th 960, 976.)

ARB obtained certification of its regulatory program in 1978. (See Respondents' Request for Judicial Notice (RJN), Exh. A.) The applicable provisions of the certified regulatory program can be found at California Code of Regulations, title 17, sections 60005-60007.

2. PROGRAM EIRS AND TIERING

ARB characterizes its FED as a first-tier, programmatic document, to be followed by subsequent rule-specific environmental review. (See Respondents' Brief (RB), pp. 32-36.) Petitioners do not dispute the appropriateness of programmatic-level review. (See Petitioners' Opening Brief (PB), p. 27: 5-7.)

A program EIR is an EIR which is prepared for a series of actions that can be characterized as one large project. (Guidelines, § 15168, subd. (a).) Use of a program EIR can provide an opportunity for a more thorough consideration of environmental effects and alternatives than could be provided in an EIR on an individual action, ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis, and allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts. (Guidelines, § 15168, subd. (b).)

Program EIRs are commonly used in conjunction with the process of tiering. (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1170 (hereafter *In re Bay Delta*); Guidelines, § 15152, subd. (h)(3).) "'Tiering' refers to the coverage of general matters in broader EIRs (such as general plans or policy statements) with subsequent narrower EIRs." (*In re Bay Delta*, at p. 1170; Guidelines, § 15385.) At the first-tier program stage, the environmental effects may be analyzed in general terms, without the level of detail appropriate for second-tier review. (*In re Bay Delta*, at p. 1169.) The analysis in the EIR

should be tailored to the first tier of the planning process, with the understanding that additional detail will be provided when specific second-tier projects are under consideration. (*Id.* at p. 1172.)

Accordingly, the standards for assessing the sufficiency of a program-level EIR are different from those used to assess the sufficiency of a project-level EIR.

3. COMPLIANCE WITH THE FUNCTIONAL EQUIVALENT OF CEQA

a. ARB's Discussion of Impacts Is Sufficiently Detailed for a Program-Level FED

ARB's certified regulatory program states that "all staff reports shall contain … an assessment of anticipated significant long or short term adverse and beneficial environmental impacts associated with the proposed action and a succinct analysis of those impacts. The analysis shall address feasible mitigation measures and feasible alternatives to the proposed action which would substantially reduce any significant adverse impact identified." (Cal. Code Regs., tit. 17, § 60005, subd. (b).) When conducting its environmental review and preparing its documentation under a certified regulatory program, an agency must still comply with the broad policy goals and substantive standards of CEQA. (*City of Arcadia*, supra, 135 Cal.App.4th at p. 1422.)

"In addressing the appropriate amount of detail required at different stages in the tiering process, the CEQA Guidelines state that '[w]here a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof …, the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographic scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand.'" (*In re Bay Delta*, supra, 43 Cal.4th at p. 1170; Guidelines, § 15252, subd. (c).) Tiering does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier EIR or negative

declaration. (Guidelines, § 15152, subd. (b).) However, the level of detail contained in a first tier EIR need not be greater than that of the program, plan, policy, or ordinance being analyzed. (*Ibid.*) A more general analysis will suffice when the EIR evaluates a general policy or planning proposal. (Guidelines, § 15146.)

Once broad, environmental issues have been examined in a first-tier EIR, EIRs on later development projects may concentrate on the environmental issues specific to the later project. (Guidelines, § 15152, subd. (a).) This allows lead agencies to prepare environmental documents that focus on issues that are ripe for decision at each stage, and to exclude issues that have already been decided or that are not ripe for decision. (Pub. Resources Code, § 21093, subd. (a); Guidelines, §§ 15152, subd. (b), 15385.) A significant environmental impact is ripe for evaluation in a first-tier EIR when it is a reasonably foreseeable consequence of the action proposed for approval and the agency has "sufficient reliable data to permit preparation of a meaningful and accurate report on the impact." (*Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1028.) "CEQA contemplates consideration of environmental consequences at the earliest possible stage, even though a more detailed environmental review may be necessary later." (*Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351, 370 (hereafter *Rio Vista*).)

An EIR must contain a sufficient degree of analysis regarding "reasonably anticipated future projects" to provide decision makers with the information needed to make an intelligent decision concerning the project's environmental consequences. (*Rio Vista*, supra, 5 Cal.App.4th at p. 370; Guidelines, § 15151.) An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. (Guidelines, § 15151.) The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. (*Ibid.*) A reviewing court will resolve any disputes regarding the adequacy of the analysis in favor of the lead agency if there is any substantial evidence in the record supporting the EIR's approach. (*Laurel Heights*, supra, 47 Cal.3d at p. 409.) Substantial evidence includes facts, reasonable assumptions predicated on

facts, and expert opinion supported by facts, but does not include argument, speculation, or unsubstantiated opinion. (Pub. Resources Code, §§ 21080, subd. (e), 21082.2, subd. (c).)

Petitioners first contend that ARB improperly deferred analysis of the impacts of potential future biofuel production facilities, refineries and power plants to subsequent project-level FEDs. (PB, p. 29: 3-16.) The FED estimates that as a result of the proposed LCFS identified in the Scoping Plan, 10-30 new biofuel production facilities will be built in California. (ARB027517.) The FED includes a map of current and proposed biofuel facilities in the state, and provides a general description of where potential future facilities might be located. (ARB027519-027520.) ARB concluded that the "conversion of biomass feedstocks into energy can result in air quality impacts… [c]riteria and toxic pollutants, as well as greenhouse gas emissions, will need to be assessed for these facilities during the siting and permitting processes." (ARB027518.)

Petitioners argue that because ARB knows where these facilities will likely be located, a more detailed impacts analysis must be included in the Scoping Plan FED. (PB, p. 29: 11-16.) In support of their arguments, Petitioners cite *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692 and *Laurel Heights*, supra, 47 Cal.3d 376. (See PB, pp. 28-30.) However, the factual findings in those cases are inapplicable here because they involve project-level EIRs rather than program-level EIRs.

Instead, *Rio Vista*, supra, 5 Cal.App.4th 351, is instructive here. In *Rio Vista*, the court considered the sufficiency of a program-level EIR for a county's hazardous waste management plan. (*Id.* at p. 362.) At issue was whether the county had violated CEQA by failing to adequately analyze the environmental impacts of constructing hazardous waste disposal facilities at identified potential sites. (*Id.* at p. 373.) The Plan itself made no commitment to future facilities, and instead merely furnished siting criteria and designated generally acceptable locations. (*Id.* at p. 371.) Both the Plan and the EIR stated that no actual sites had been recommended or proposed, and that subsequent project EIRs would be prepared in the event specific facilities were proposed in the future. (*Ibid.*)

The EIR described the Plan as a primary planning document for hazardous waste management in the county, and noted that the Plan itself would have no direct adverse impacts on the environment. (*Rio Vista*, supra, 5 Cal.App.4th at p. 365.) To the contrary, the EIR continued, the Plan should result in beneficial impacts through improved and safer management of the county's hazardous wastes. (*Id.* at p. 366.) The EIR recognized that the Plan could allow certain projects, such as the hazardous waste disposal facilities, to proceed, and that such projects could have adverse impacts. (*Ibid.*) The EIR discussed these potential impacts in general terms, but deferred discussion of specific impacts of identified potential sites until such a time as the actual future sites were proposed. (*Id.* at pp. 366-367.)

The court held that a general discussion of the environmental impacts of potential hazardous waste disposal facilities was sufficient for a project-level EIR. (*Rio Vista*, supra, 5 Cal.App.4th at p. 375.) "Considering the speculative nature of any secondary effects from an uncertain future facility, which will be subject to its own separate environmental review, we conclude that no further findings on environmental impacts or the rationale for such findings was reasonably required from the FEIR." (*Ibid.*)

Similarly here, the FED discusses the potential impacts of future biofuel production facilities in general terms, but defers more detailed discussion of environmental impacts to the LCFS rulemaking stage. (ARB027518.) The Scoping Plan itself does not recommend or propose any future facilities, and therefore a general discussion of potential impacts was sufficient.

Petitioners attempt to distinguish *Rio Vista* on the grounds that the plan in that case was an initial working document to be updated and reviewed periodically. (See Petitioners' Reply Brief (PRB), p. 18: 7-9.) Here, they argue, the Scoping Plan is the framework for fulfilling A.B. 32's mandates, and therefore the FED must contain a more detailed analysis of impacts. (PRB, p. 18: 9-11.) However, Petitioners offer no evidence to support this distinction.

Also instructive here is *In re Bay*-Delta, supra, 43 Cal.4th 1143. In that case, the court considered the sufficiency of a program-level EIR for a long-term water management plan. (*Id.* at p. 1151.) At issue was whether CALFED had violated CEQA by failing to adequately analyze the

environmental impacts of proposed "second-tier" projects in the project-level EIR. (*Id.* at p. 1152.) The EIR described the Program as "a general description of a range of actions that will be further refined, considered, and analyzed for site-specific environmental impacts as part of second- and third-tier environmental documents prior to making a decision to carry out these later actions. (*Id.* at pp. 1156-1157.)

The EIR provided a broad and comprehensive overview of the potential actions that could be taken by the Program. (*In re Bay Delta*, supra, 43 Cal.4th at p. 1170.) It described, in general terms, the overall and long-term environmental consequences of the potential proposed actions, but did not analyze site-specific impacts of future projects at proposed locations. (*Id.* at pp. 1170, 1173, 1175.)

The court held that the EIR contained sufficient analysis for a first-tier document. (In *re Bay Delta*, supra, 43 Cal.4th at pp. 1173, 1177.) It noted that "although later project-level EIRs ... will require an independent determination and disclosure of significant environmental impacts ... such details were properly deferred to the second tier of the CALFED Program, when specific projects can be more fully described and are ready for detailed consideration. (*Id.* at p. 1173.)

Similarly here, the Scoping Plan FED describes the environmental consequences of the potential LCFS program, but does not analyze site-specific impacts of future facilities. (ARB027518.) Such details were properly deferred to the environmental review process for the LCFS rulemaking.

Petitioners attempt to distinguish the *Bay Delta* case by suggesting that the EIR in that case was sufficient because it properly considered both statewide and regional impacts, unlike the Scoping Plan FED, which did not consider regional impacts. (PRB, p. 21 fn. 7.) However, the sufficiency of the EIR in *Bay Delta* did not depend on those facts.

Petitioners next contend that ARB's discussion of cumulative impacts is overly broad, conclusory, and contradictory. (PB, p. 30: 6-11.) The FED states that overall, the Scoping Plan is expected to "substantially improve air quality." (ARB027512.) Petitioners argue that this conclusion is unsupported by facts or data and is contradicted by evidence in the record that some

of the Scoping Plan's proposed measures may actually cause localized pollution hotspots. (PB, p. 30: 10-11; ARB023434-35, 023450-53.)

In response, ARB argues that it analyzed cumulative impacts at numerous places, including: aesthetics, air quality, agricultural resources, biological resources, cultural resources, energy demand, geology and soils, from hazardous materials, land use, mineral resources, from noise, population and housing, public services, recreation, solid waste, transportation, water resources, and public health and safety. (RB, p. 38: 19-23, 39: 1; ARB027511-12, 027529, 027531, 027534-35, 027537-38, 027542, 027545-51, 027553, 027560.) More specifically, as to the proposed cap and trade regulation, ARB concludes that "cap and trade … is not expected to result in adverse air quality impacts." (ARB027513.) ARB reaches this conclusion by observing that there is nothing inherent in the cap and trade system which would "provide an incentive for facilities to increase emissions beyond the levels expected in the absence of implementing A.B. 32." (ARB027514.) Additionally, as to the LCFS regulation, ARB recognizes that while the cumulative impact of implementing the recommended measures may be to decrease emissions, there could be localized air quality impacts in areas where future natural gas generation facilities are sited. (ARB027512.)

As discussed above, the *Rio Vista* and *Bay Delta* cases are applicable here. Here, as in those cases, ARB properly identified the potential adverse impacts of measures proposed by the Scoping Plan and analyzed them to the extent feasible. Localized and site-specific impacts associated with the cap and trade and LCFS programs were properly deferred to the rulemaking stage.

The Court concludes that ARB's discussion of impacts is sufficiently detailed for a program-level FED under both CEQA and ARB's certified regulatory program. Therefore, ARB did not abuse its discretion in certifying the impacts portion of the FED as complete.

b. ARB's Discussion of Alternatives Is Inadequate

ARB's certified regulatory program states that "staff reports … shall address … feasible alternatives to the proposed action which would substantially reduce any significant adverse

impact identified." (Cal. Code Regs., tit. 17, § 60005, subs. (b).) When conducting its environmental review and preparing its documentation under a certified regulatory program, an agency must still comply with the broad policy goals and substantive standards of CEQA. (*City of Arcadia*, supra, 135 Cal.4th at p. 1422.)

CEQA requires that an EIR, in addition to analyzing the environmental effects of a proposed project, also consider and analyze project alternatives that would reduce adverse environmental impacts. (Pub. Resources Code, § 21061.) The CEQA Guidelines state that an EIR must describe a reasonable range of alternatives to the project which would feasibly attain most of the basic objectives of the project and evaluate the comparative merits of the alternatives. (Guidelines, § 15126.6, subs. (a); *Rio Vista*, supra, 5 Cal.App.4th at pp. 377-378.) The discussion of alternatives should include sufficient information about each alternative to allow evaluation, analysis, and comparison with the proposed project. (Guidelines, § 15126.6, subs. (d).) Absolute perfection is not required; what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. (*Rio Vista*, supra, at p. 378; *Laurel Heights*, supra, 47 Cal.3d at p. 406.) It is only required that the agency make an objective, good-faith effort to comply. (*Rio Vista*, supra, at p. 378.)

The EIR "must reflect the analytic route the agency traveled from evidence to action." (*Kings County Farm Bureau*, supra, 221 Cal.App.3d at p. 733; *Laurel Heights*, supra, 47 Cal.3d at p. 404.) It "must contain facts and analysis, not just the bare conclusions of a public agency." (*Kings County Farm Bureau*, supra, at p. 736; *Laurel Heights*, supra, at p. 404.) "An agency's opinion concerning matters within its expertise is of obvious value, but the public and decision-makers, for whom the EIR is prepared, should also have before them the basis for that opinion so as to enable them to make an independent, reasoned judgment." (*Kings County Farm Bureau*, supra, at p. 736.) "An EIR which does not produce adequate information regarding alternatives cannot achieve the dual purpose served by the EIR, which is to enable the reviewing agency to make an informed decision and to make the decisionmaker's reasoning accessible to the public,

thereby protecting informed self-government." (*Kings County Farm Bureau*, supra, at p. 733; *Laurel Heights*, supra, at p. 392.)

As with the environmental impacts analysis, the degree of specificity required of the alternatives analysis depends upon the degree of specificity involved in the underlying activity described in the EIR. (Guidelines, § 15146; *Al Larson Boat Shop*, supra, 18 Cal.App.4th at p. 746.) The discussion of alternatives in an EIR for a planning level action need not be as precise as the discussion for a specific development project. (Guidelines, § 15146; *Al Larson Boat Shop*, supra, at p. 746.)

The sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. (Guidelines, § 15151.) The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. (*Ibid.*) A reviewing court will resolve any disputes regarding the adequacy of the analysis in favor of the lead agency if there is any substantial evidence in the record supporting the EIR's approach. (*Laurel Heights*, supra, 47 Cal.3d at p. 409.) Substantial evidence includes facts, reasonable assumptions predicated on facts, and expert opinion supported by facts, but does not include argument, speculation, or unsubstantiated opinion. (Pub. Resources Code, §§ 21080, subd. (e), 21082.2, subd. (c).)

Petitioners contend that ARB's discussion of alternatives is unsupported by facts or data and therefore gives the public no indication as to why ARB chose the Scoping Plan over the other alternatives. (See PB, p. 31-34.)

The FED contains a discussion of five alternatives to the Scoping Plan. (ARB027562-027578.) Alternative 1 describes the "no project" or "business as usual" alternative. (ARB027563-027572.) Alternative 2 is a variation of the strategies and measures proposed by the Scoping Plan. (ARB027573.) Alternatives 3, 4 and 5 are programs that rely primarily on cap and trade, source-specific regulations, or a carbon fee. (ARB027573-027575.)

Alternative 1, or the "no project" alternative is described in ten pages of the FED. (See ARB027563-027572.) In its discussion, ARB uses emissions data from past years in order to

forecast 2020 emissions from a variety of sectors in the absence of any regulations. (ARB027563.)

Alternatives 2 through 5, by contrast, are collectively described in just over three pages of the FED. (See ARB027572-027575.) In its discussion, ARB states that it "expect[s] that environmental impacts (both positive and adverse) of all the alternatives would be similar to the impacts expected from [the] mix of measures identified in the Scoping Plan" because they target the same basic level of emissions reductions under AB 32. (ARB027572-027573.) However, ARB provides little to no facts or data to support this conclusion, noting only that "[d]ifferent approaches could mean more or less reduction activity in any given sector," and "[w]hile the magnitude of impacts might increase or decrease, it would be speculative to try to estimate the effects at this time, before the details of specific measures are developed." (ARB027572-027573.)

ARB makes similar assertions about each individual alternative; repeatedly stating that measures ultimately adopted will depend on information that is learned in the future during the development of each measure, and that it cannot predict in which sectors and what geographic locations reductions might occur. (See ARB 027573, 027574, 027575.)

ARB argues that its discussion of alternatives was sufficiently detailed for a programmatic document, and that it is inconsistent for the Court to find its discussion of impacts to be adequate, yet insufficient as to alternatives. (RB, p. 41: 12-16.) Impacts and alternatives cannot be equated given the facts of the instant case. As discussed in the *Rio Vista* and *Bay Delta* cases (see above), detailed discussion of site-specific projects such as biofuel and waste treatment plants may be deferred until such projects are actually planned and implemented. By contrast, consideration of alternatives here is central to the analysis and decision-making process of determining GHG reduction methodology. While a program-level EIR need not be as detailed as a project-level EIR, ARB must still provide the public with a clear indication based on factual analysis as to why it chose the Scoping Plan over the alternatives. ARB's extensive evaluation of the proposed cap and trade program in Chapter II of the Scoping Plan provides the public with information about

cap and trade only. CEQA requires that ARB undertake a similar analysis of the impacts of each alternative so that the public may know not only why cap and trade was chosen, but also why the alternatives were not.[1]

Most notably, the Scoping Plan fails to provide meaningful information or discussion about the carbon fee (or carbon tax) alternative in the scant two paragraphs devoted to this important alternative. The brief fifteen line reference to the carbon fee alternative consists almost entirely of bare conclusions justifying the cap and trade decision. Informative analysis is absent. ARB fails to describe what a carbon fee program consists of, how fees or taxes are established, criteria for setting the amounts, what the California, United States and worldwide experience has been, how it is administered and by whom, what are the alternatives for use of the revenue and what sectors of the economy it should be considered for, or not, and why. It does not provide the basic information necessary for ARB and the public to be informed about this alternative and its place in California's massive effort to improve the environment pursuant to legislative mandate.

Although ARB need not discuss the site-specific or speculative impacts of each alternative, it may not use the "programmatic" label to justify an analysis which is inadequate for informed public review and informed decision making. Furthermore, ARB's assertion that a more detailed analysis of alternatives will come later during the rulemaking stage (RB, p. 45 fn. 34) is irrelevant to the Court's determination that more analysis is necessary at this stage. CEQA's demand for meaningful information "is not satisfied by simply stating that it will be provided in the future." (*Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 723.)

[1] ARB cites a litany of statements found in the Scoping Plan and the Administrative Record which it claims to be facts constituting substantial evidence in support of its conclusions. (See Respondent's Objections to the Tentative Statement of Decision, pp. 5-10.) The Court finds that these statements are largely unexplained, generalized assertions lacking in informative value and appearing in the context of justifying or promoting cap and trade. For example, "[a] carbon fee, like a cap and trade program, is a way to price carbon." This merely states the obvious and conveys no substantive information to the public. The Court also notes that the statements drawn from the multi-thousand page, 19 CD Administrative Record lack accessibility by the interested public. The Court finds the referenced statements do not constitute substantial evidence in support of ARB's conclusions.

ARB seeks to create a *fait accompli* by premature establishment of a cap and trade program before alternatives can be exposed to public comment and properly evaluated by ARB itself. ARB's discussion must include a factual analysis of each of the alternatives to the Scoping Plan, not merely a discourse on cap and trade justification, and as Petitioners point out, data is available to analyze. (See PB, p. 37: 7-22.) ARB could have, and should have used data from existing programs, studies, and reports to analyze the potential impacts of the various alternatives.[2]

The Court concludes that because ARB failed to adequately describe and analyze alternatives sufficient for informed decision-making and public review, it failed to proceed in the manner prescribed by law. Therefore, ARB abused its discretion in certifying the FED as complete.

c. ARB Improperly Approved the Scoping Plan Prior to Completing Its Environmental Review

Petitioners argue that ARB improperly approved and began implementing the Scoping Plan prior to completing its obligation to review and respond to public comments. (See PB, pp. 38-41.) In support of this contention, Petitioners point to (1) the specific language of Resolution 08-47, (2) a public meeting that ARB held to discuss implementation of the Scoping Plan, and (3) the fact that no changes were made to the FED or the Scoping Plan after the time Resolution 08-47 was adopted.

On December 11, 2008, during a noticed public hearing, ARB adopted Resolution 08-47, which stated that "subject to the Executive Officer's approval of written responses to environmental issues that have been raised, the Board is initiating steps toward the final approval of the Proposed Climate Change Scoping Plan and its Appendices." (ARB027612-027613.) The Resolution further stated that ARB had prepared an FED for the Scoping Plan which indicated

[2] ARB claims that such information from programs, studies and reports is not found in the Administrative Record. (Respondent's Objections to the Tentative Statement of Decision, p. 14.) It was ARB's own decision not to include such information in the Administrative Record, and consequently the Scoping Plan, and not to expose it to public scrutiny and comparison.

that the project could have adverse environmental impacts but that these impacts were speculative, and that it had not identified any feasible alternatives at this time. (ARB027611.)

After adopting Resolution 08-47, but prior to issuing its responses to public comments on the FED, ARB held a public workshop to summarize the process to be followed in implementing the Scoping Plan. (ARB014315-014316.) The notice for the January 29, 2009 workshop stated that ARB had approved the Scoping Plan at its December, 2008 meeting. (ARB014315.)

Finally, on May 7, 2009, the Executive Officer signed Executive Order G-09-001, approving the responses to comments on the FED and adopting the Scoping Plan. (ARB027689-027692.) No changes were made to either the FED or the Scoping Plan as adopted by Resolution 08-47. (PB, p. 40: 2-3.)

ARB's certified regulatory program provides that: "[i]f comments are received during the evaluation process which raise significant environmental issues associated with the proposed action, the staff shall summarize and respond to the comments either orally or in a supplemental written report. Prior to taking final action on any proposal for which significant environmental issues have been raised, the decision maker shall approve a written response to each such issue." (Cal. Code Regs., tit. 17, § 60007, subd. (a).)

ARB argues that it complied with the requirements of its certified regulatory program by reviewing and responding to public comments prior to the Executive Officer's final approval of the Scoping Plan on May 7, 2009. (See RB, pp. 47-50.) However, ARB has interpreted its regulation in a way that undermines CEQA's goal of informed decision-making. "The written response requirement ensures that members of the Commission will fully consider the information necessary to render decisions that intelligently take into account the environmental consequences." (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 133.) "It also promotes the policy of citizen input underlying CEQA." (*Ibid.*) "When the written responses are prepared and issued after a decision has been made, however, the purpose served by such a requirement cannot be achieved." (*Ibid.*)

ARB attempts to avoid CEQA's mandates by referring to the process under which a decision is actually made as "adoption" rather than "approval." This is an empty distinction given that the implementation has commenced. ARB was unable to make an informed decision at the time it adopted Resolution 08-47 because it had not yet reviewed and responded to public comments. Accordingly, any efforts to approve the Scoping Plan and implement its proposed measures prior to completing the environmental review process were violations of both CEQA and ARB's own certified regulatory program.

The Court concludes that ARB failed to comply with the informational requirements of CEQA and its own certified regulatory program when it issued Resolution 08-47 and began implementing the Scoping Plan at the January 29, 2009 public workshop without first completing the environmental review process. Because it did not proceed in a manner required by law, ARB abused its discretion.

C. SCOPE OF REMEDY

ARB argues that the Scoping Plan is not a condition precedent to the adoption of the regulations it describes, because AB 32 provides independent rulemaking authority in Section 38562. (See Respondents' Objections to the Tentative Statement of Decision, p. 17: 16-19.) Therefore, ARB argues, the Court may not issue an order enjoining "implementation of proposed measures" even if it may issue an order requiring that ARB revise the FED to comply with CEQA. (*Id.* at p. 16: 14-15.)

Under Public Resources Code section 21168.9, if a court finds that an agency's decision has been made in violation of CEQA, and that a specific activity or activities will prejudice the consideration of alternatives to the project, it may enjoin any or all activities that could result in an adverse change to the physical environment until the agency has come into compliance with CEQA.

As discussed in Part I.A. above, the Court, not the agency, has final responsibility for the interpretation of the law under which the regulation was issued. (*Yamaha*, supra, 19 Cal.4th at p. 11 fn. 4.) Although the Court has deferred to ARB's expertise in interpreting AB 32's substantive

mandates, it cannot defer to ARB's erroneous interpretation of AB 32's procedural mandates. To find that ARB's rulemaking authority under AB 32 is completely severable from its obligation to prepare a Scoping Plan would render that obligation an expensive and meaningless waste of time. Continued rulemaking and implementation of cap and trade will render consideration of alternatives a nullity as a mature cap and trade program would be in place well advanced from the premature implementation which has already taken place. In order to ensure that ARB adequately considers alternatives to the Scoping Plan and exposes its analysis to public scrutiny prior to implementing the measures contained therein, the Court must enjoin any further rulemaking until ARB amends the FED in accordance with this decision.

CONCLUSION

I. PETITIONERS' CHALLENGES UNDER AB 32

Based upon the foregoing, the Court DENIES the Petition for Writ of Mandate as to all of Petitioners' AB 32 causes of action.

II. PETITIONERS' CHALLENGES UNDER CEQA

The Court GRANTS the Petition for Writ of Mandate as to the alternatives analysis and timing causes of action. The Court DENIES the Petition for Writ of Mandate as to the impacts analysis causes of action. Therefore, let a peremptory writ of mandate issue commanding ARB to set aside its certification of the FED and enjoining any further implementation of the measures contained in the Scoping Plan until after Respondent has come into complete compliance with its obligations under its certified regulatory program and CEQA.

Petitioner is ORDERED to prepare a Writ of Mandate consistent with the Court's ruling in this case.

Under Public Resources Code § 21168.9(b), this Court will retain jurisdiction over ARB's proceedings by way of a return to this peremptory writ of mandate until the Court has determined that ARB has complied with the provisions of CEQA.

DATED: MAR 17, 2011

ERNEST H GOLDSMITH

HON. ERNEST H. GOLDSMITH
Judge of the Superior Court

Superior Court of California
County of San Francisco

ASSOCIATION OF IRRITATED RESIDENTS, an unincorporated association, et al., Petitioners and Plaintiffs, vs. CALIFORNIA AIR RESOURCES BOARD, et al., Respondents and Defendants.	Case No.: CPF-09-509562 **CERTIFICATE OF MAILING** (CCP 1013a (4))

I, Linda Fong, a Deputy Clerk of the Superior Court of the County of San Francisco, certify that I am not a party to the within action.

On March 18, 2011, I served the attached **STATEMENT OF DECISION: ORDER GRANTING IN PART PETITION FOR WRIT OF MANDATE** by placing a copy thereof in a sealed envelope, addressed as follows:

Alegria De La Cruz, Esq.
Center on Race, Poverty & the Environment
47 Kearny Street, Suite 804
San Francisco, CA 94108

Adrienne Bloch
Senior Staff Attorney
Communities for a Better Environment
1904 Franklin Street, Suite 600
Oakland, CA 94612

Angela Johnson Meszaros, Esq.
Law Offices of Angela Johnson Meszaros
1107 Fair Oaks Avenue, Suite 246
South Pasadena, CA 91030

Caroline Farrell, Esq.
Center on Race, Poverty & the Environment
1302 Jefferson Street, Suite 2
Delano, CA 93125

Mark W. Poole
Deputy Attorney General
455 Golden Gate Avenue, Suite 11000
San Francisco, CA 94102

Timothy O'Connor, Esq.
Environmental Defense Fund
123 Mission Street, 28th Floor
San Francisco, CA 94105

and, I then placed the sealed envelopes in the outgoing mail at 400 McAllister Street, San Francisco, CA. 94102 on the date indicated above for collection, attachment of required prepaid postage, and mailing on that date following standard court practices.

Dated: March 18, 2011

T. MICHAEL YUEN, Clerk

By: _____
Linda Fong, Deputy Clerk

Summary of LAO Findings and Recommendations on the 2011-12 Budget

What Is This Page About?

Create a summary list by choosing a Policy Area *OR* Department below, and clicking Go.

Select Policy Area OR Select Department 2011 Go

Clear Page

Questions About a Recommendation?
Is text being cut off at the right margin when you print?

	Program	Budget Issue	LAO Finding Or Recommendation	Last Updated
Go Back	AB 32 Implementation	Recommendations from our review of AB 32 zero-based budget submitted by Administration on May 4	Reduce cap-and-trade-related expenditures budgeted for 2011-12 by $8 million (Air Pollution Control Fund) and direct remaining $961,000 budgeted for cap-and-trade to be used only to complete an alternatives analysis required by the courts. Direct Air Resources Board to cease all work on the cap-and-trade program until it has completed the required alternatives analysis and presented the results to the Legislature.	5-20-11

Detailed Narrative

AB 32-Related Work Cuts Across State Government. The Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006 [AB 32, Nunez)]) established the goal of reducing greenhouse gas emissions (GHGs) statewide to 1990 levels by 2020. While the act charged the Air Resources Board with monitoring and regulating the state's sources of GHGs, AB 32-related work is currently being conducted by 180 positions in nine departments throughout state government at a cost of $37 million.

Legislature Required Administration to Submit Justification of All AB 32- Related Work in a Zero-Based Budget (ZBB). In a 2010 report to the Legislature, we highlighted the fact that the implementation of AB 32 will soon be at a crossroads. The program focus has now begun to shift from regulatory development to implementation and enforcement. As such, the Legislature included language in the 2010-11 Resources trailer bill (SB 855) requiring a zero-based budget be submitted by April 1, 2011 for all AB 32 expenditures across state government in order to reevaluate the base funding requirements of AB 32 program implementation. Additionally, this was intended to help ensure that the AB 32 Implementation Fee (which is assessed on larger carbon-intensive industries in order to support AB 32 implementation) is set at an appropriate level. The trailer bill language *in effect* assumes that all AB 32 work in the budget year is to be unfunded unless justified in the ZBB report.

Administration's ZBB Lacks Adequate Workload Justification. On May 4, 2011, more than one month after it was due, the Administration submitted the AB 32 ZBB to the Legislature. Upon review, we found that the report generally lacked adequate workload analysis to justify the *level* of staffing and contract resources requested for the various AB 32-related activities across state government. In other words, while the report specifies at a high level the nature of the work to be conducted using the requested resources, it fails to provide an analysis to support the amount of resources requested based on workload requirements. Accordingly, the report is not responsive to the Legislature's requirement that the report include "an itemized justification for the amount requested to perform [each] activity." This makes it difficult, if not impossible, for the Legislature to make appropriate adjustments to the AB 32 budget using the ZBB as the basis for its evaluation.

Despite Lawsuit, Administration Moving Forward With Development of Cap-and-Trade Program. In December of 2010, a lawsuit was filed against ARB alleging that the board failed to follow statutory requirements of AB 32 and the California Environmental Quality Act (CEQA) in its development of measures to implement AB 32, including its proposed cap-and-trade regulation. In its statement of decision, the lower court found that because ARB failed to adequately describe and analyze alternatives [to cap-and-trade] sufficient for informed decision-making and public review, it failed to proceed in the manner prescribed by law. In its final ruling, the court enjoined ARB from engaging in any cap-and-trade related project activity until ARB has come into complete compliance with CEQA. The ARB has stated that it is currently conducting further analysis which the courts have required. The ARB has expressed that it will file an appeal, and during the appeals process, it intends to proceed with the development of its cap-and-trade program. It appears to us, however, to be premature to continue development of the program before the analysis is complete, as the analysis, if done comprehensively and meaningfully, should usefully inform what role, if any, a cap-and-trade program should play in meeting AB 32's goals. Regardless of the court order, we think that it is important for ARB to conduct such analysis to ensure that the mix of measures to address AB 32's goals maximizing cost-effectiveness as required by AB 32.

ZBB Shows Substantial Expenditures for Cap-and-Trade Development and Implementation in Budget Year. In the current year, ARB has a total of 32 positions which support the development and implementation of the cap-and-trade program at a cost close to $5 million. The ZBB shows an additional $4 million in contract costs

related to cap-and-trade implementation in 2011-12, bringing the total cost of cap-and-trade development and implementation to about $9 million in the budget year.

LAO Recommendation. The cap-and-trade program is a significant part of the AB 32 Scoping Plan. There are numerous policy considerations associated with its implementation, and, as such, proceeding with its implementation before completing the analysis discussed above is premature. Therefore, we recommend that the Legislature direct the ARB to cease all work on the cap-and-trade program until it has completed the required analysis of potential alternatives and presented the results to the Legislature. This would provide the Legislature with the opportunity to evaluate the analysis and to provide further policy direction to the ARB. Accordingly, we also recommend that the Legislature reduce funding included in the budget for cap-and-trade development and implementation by $8 million (from the Air Pollution Control Fund), which would leave $961,000 of the monies budgeted for cap-and-trade. The ARB should be directed to spend up to the amount of these remaining monies solely for the completion of the alternatives analysis. Once the analysis has been completed and evaluated by the Legislature, the Administration could then submit a revised budget proposal for cap-and-trade development and implementation that reflects the findings from its alternative analysis and that is consistent with any policy direction that the Legislature has provided.

CRPE

CENTER ON RACE, POVERTY & THE ENVIRONMENT

47 KEARNY STREET, SUITE 804, SAN FRANCISCO, CA 94108 TEL 415-346-4179 FAX 415-346-8723

WWW.CRPE-EJ.ORG

December 14, 2010

Via electronic submittal

Chairman Mary Nichols
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments on Greenhouse Gas Cap and Trade Regulation

Dear Chairman Nichols and Members of the Board:

The Center on Race, Poverty & the Environment ("CRPE") submits these comments on behalf of the undersigned organizations in opposition to the proposed cap and trade regulation. CRPE is a non-profit environmental justice organization that has worked with low income and communities of color for over twenty years. Most of these communities already breathe some of the worst air in the Nation.[1] These communities already bear a disproportionate share of California's environmental and public health burdens. This proposed regulation violates the Legislature's mandate in AB 32 to avoid disproportionate impacts on low-income communities and communities of color in its quest to reduce greenhouse gas ("GHG") emissions and build upon California's tradition of environmental leadership both nationally and internationally. At best, this proposed regulation demonstrates ARB's failure to consider and address the current reality of environmental justice communities. At worst, this proposed regulation accepts and promotes this disparate and discriminatory treatment of the most vulnerable communities in our State.

As proposed, the cap and trade rulemaking fails to capitalize on the opportunity to create well-paying green jobs in California and fuel a green economic revolution. Instead, the Board is being asked to adopt a program that forgoes the economic and public health benefits from in-state reductions, favors out-of-state reductions from virtually unlimited offsets, and creates a vastly complicated and unproven mechanism that will more likely than not fail to deliver AB 32's ultimate goal of reducing GHG emissions in a thoughtful and equitable manner by 2020. Unfortunately, this challenge to ARB's implementation of AB 32 is not new to environmental justice communities.

[1] Bakersfield and Fresno are in the top 5 most polluted cities in the U.S. for both PM 2.5 and Ozone, Kern County is in the top 3 most polluted counties for PM2.5 and Ozone, other Valley cities and counties are in the top 10. American Lung Association State of the Air 2010. http://www.stateoftheair.org/

Environmental justice communities have been actively engaged in the administrative processes to implement AB 32 and, in the legal arena, to enforce its statutory mandates designed to ensure informed decision-making and equity.

The Board should not adopt the proposed cap and trade rule. ARB has not conducted a proper foundational analysis to justify this choice of a market mechanism, and ARB has not analyzed a reasonable range of alternatives in accordance with the California Environmental Quality Act ("CEQA").

I. ARB SHOULD NOT ADOPT THE CAP AND TRADE RULE UNTIL A PENDING LEGAL CHALLENGE TO THE SCOPING PLAN IS CONCLUDED.

On June 10, 2009, Petitioners Association of Irritated Residents, *et al*, represented by CRPE and Communities for a Better Environment ("CBE"), filed a Complaint for Declaratory and Injunctive Relief and Petition for a Writ of Mandate directing ARB to revise its Climate Change Scoping Plan to comply with Assembly Bill 32 ("AB 32") and CEQA.[2] On February 19, 2010, Petitioners filed their First Amended Complaint and Petition ("FAC").

Petitioners challenged the Scoping Plan because it inadequately sets up *the* overarching regulatory framework for AB 32's implementation. Further, the range of measures that the Scoping Plan has established dictates the parameters of the future options available to meet AB 32's goals. Petitioners raised a number of deficiencies in the Plan, and specifically raised four claims regarding ARB's inclusion of a cap and trade program: (1) ARB's failure to assess maximum technological feasibility and to develop a cost-effectiveness criteria with which to compare reduction measures to market mechanisms (FAC, First Cause of Action), (2) ARB's failure to analyze whether a cap and trade program could effectively facilitate the achievement of maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020 (FAC, Second Cause of Action), (3) ARB's failure to consider the performance of cap and trade programs in other states, localities, and nations, including the northeastern states of the United States, Canada, and the European Union (FAC, Fourth Cause of Action), and (4) ARB's failure to adequately analyze alternatives to regional cap and trade (FAC, Eighth Cause of Action).

Because the Scoping Plan lacks the fundamental analysis required, not only will AB 32 fail, but each subsequent regulatory program that flows from this Plan, such as the cap and trade rule, will share these fundamental flaws. Thus, the Board should not adopt the cap and trade rule before the Court rules on Petitioners' claims, for which the hearing is scheduled for December 20, 2010.

II. THIS REGULATION LACKS THE FOUNDATIONAL ANALYSIS REQUIRED BY AB 32.

AB 32 requires that ARB not only identify measures, but also determine that these measures facilitate achievement of "*maximum* technologically feasible" reductions.[3] The identified measures must also be shown to be cost-effective.[4] The Scoping Plan then forms the basis of ARB's

[2] *Association of Irritated Residents v. California Air Resources Board*, No. CPF-09-509562 (San Francisco County Superior Court)

[3] Health and Safety (H&S) Code § 38561(a).

[4] *Id*.

regulations. But ARB failed to perform this analysis or even set forth criteria to determine "cost-effectiveness."[5] The Legislature intended the Scoping Plan to function as the foundation to any and all rules that flow from its implementation (like the cap and trade regulation), and this intent is unwavering.[6] Implementation of AB 32 requires, *inter alia*, the findings and process to demonstrate maximum technological feasibility and cost-effectiveness; without that, the development of any regulation is void and exceeds ARB's authority. This proposed regulation, therefore, lacks the foundation required by AB 32.

These foundational Scoping Plan requirements for achievement of "maximum technologically feasible and cost-effective reductions" continue into each individual rulemaking.[7] Instead of relying on the criteria that should have been created at the Scoping Plan level, ARB claims that the measure of the cap and trade rule's cost-effectiveness is the estimated allowance price.[8] This same rationale – called the "Cost of a Bundle of Strategies" approach at the Scoping Plan level – has also been challenged in the above-mentioned Petition, because it not only fails to meet the requirements of AB 32, but pricing a chosen measure is not the same as evaluating its cost-effectiveness.

Thus, the fundamental flaws identified and challenged in the pending Petition appear in this proposed regulation, in violation of AB 32. Not only are the requirements of AB 32 at the Scoping Plan level rendered meaningless, but ARB fails to address them in this rulemaking. This regulation lacks the substantive, legally-mandated foundation intended by the Legislature and will fail.

III. THE REGULATION FAILS TO MEET AB 32 CRITERIA FOR MARKET-BASED COMPLIANCE MECHANISMS.

The Legislature included specific protections for communities already burdened by air pollution, sought to prevent an increase in toxic exposure, and wanted to maximize benefits for California. Accordingly, the Legislature commanded the Board, before adopting a market-based compliance mechanism, to

> (1) consider the potential for direct, indirect and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely affected by air pollution;
>
> (2) design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants; and
>
> (3) maximize additional environmental and economic benefits for California, as appropriate.[9]

[5] *Id.;* H&S Code § 38561(d).

[6] H&S Code § 38561(a) - (h).

[7] H&S Code § 38562(a).

[8] California Air Resources Board, Staff Report: Initial Statement of Reasons (October 28, 2010) ("ISOR"), p. VIII-14.

[9] H&S Code § 38570(b).

The proposed cap and trade regulation violates the Legislature's unambiguous commands, threatens communities with more air pollution, and fails to seize the opportunity to benefit California both economically and environmentally. The Board, if it adopts this free market hypothesis, will forgo the opportunity to generate well-paying green jobs and stimulate a California-based clean energy economy.

A. The Regulation Does Not Sufficiently Address Impacts on Environmental Justice Communities.

Before adopting a market-based compliance mechanism, such as cap and trade, the Board must consider the potential emission impacts, including localized impacts, and the regulation must not disproportionately impact low-income communities.[10] The current regulation cannot show that it would meet the requirements of AB 32. As designed, the regulation cannot ensure that localized air pollution impacts will be avoided. Pollution trading creates environmentally unjust outcomes and does not work to reduce greenhouse gas emissions.

1. ARB has not adopted a method to identify environmental justice communities.

ARB has not adopted a methodology for identifying disproportionately impacted, low-income communities throughout the state. For the co-pollutant assessment, ARB chose 4 communities after consulting with the Environmental Justice Advisory Committee and other environmental stakeholders.[11] While we agree these communities are environmental justice communities that should be assessed, ARB can't stop there. Each environmental justice community is unique and ARB needs to have a method to identify and analyze these communities. Without a screening method, it is impossible for ARB to evaluate whether this regulation, or any other under AB 32, will have localized impacts in communities already adversely impacted by pollution. ARB needs a screening method to ensure a complete evaluation of the most vulnerable communities, the communities the Legislature sought to protect when it adopted Health & Safety Code § 38652(b)(1). A host of factors, such as race, linguistic isolation, and the number of polluting sources pre-existing in an area, along with income should be used to paint a more complete picture. The Board should adopt the mapping tool created by Manuel Pastor, James Sadd, and Rachel Morello-Frosch which was part of the ARB-funded project to develop methodological approaches to address environmental justice concerns[12] and apply the Environmental Justice Screening Method statewide before making decisions on market-based mechanisms, including this cap and trade regulation.

Additionally, the Board should not make a decision on this cap and trade regulation before a Health Impact Assessment (HIA) is completed. The staff report refers to the HIA being conducted by the California Department of Public Health but does not indicate when it will be completed.[13] According to the report, the HIA will evaluate potential health impacts, health disparities among

[10] H&S Code § 38570(b)(1); 38562(b)(1) and (b)(2).

[11] ISOR, Appendix P: Co-Pollutant Emissions Assessment, p. P-8

[12] California Air Resources Board (2010): Air Pollution and Environmental Justice: Integrating Indicators of Cumulative Impact and Social-Economic Vulnerability into Regulatory Decision-Making. http://www.arb.ca.gov/research/apr/past/04-308.pdf.

[13] ISOR Appendix P, p. P-3

communities, and potential uses of any revenue generated by this proposed regulation.[14] This is all valuable information to have *before* the Board makes a decision on the cap and trade regulation. Waiting to examine "community health status, air pollution exposures, and vulnerable populations" as part of the "public decision-making process on the use of revenues generated by the program" is unacceptable and violates the mandates of AB 32.[15]

2. The regulation does not prevent localized or disproportionate impacts.

Because the cap and trade program offers emitters flexibility in how they reduce greenhouse gases to comply with the program, there is a substantial risk of undesirable side effects. ARB cannot anticipate where emissions reductions will occur. Because ARB cannot predict where emissions reductions and criteria pollutant co-benefits will occur, the regulation is not *designed to prevent* localized impacts. Nothing in the regulation actually prohibits an increase in criteria or toxic emissions.[16] Emitters could choose to adopt a measure that reduces GHGs but increases air pollution. Reliance on other, unspecified air pollution regulations to prevent increases in co-pollutants is inappropriate and speculative. AB 32 requires the Board to "design any market-based compliance mechanism *to prevent* any increase in the emissions of toxic air contaminants or criteria air pollutants."[17]

ARB admits that this threat is real. The staff report analysis states "the regulation affords entities flexibility to choose the most cost-effective strategies to reduce emissions, so the potential for some compliance actions to result in increased co-pollutant emissions at some facilities cannot be entirely discounted."[18] ARB will only monitor the situation and take steps as necessary to address increases in criteria pollutants and toxics as they occur. The report goes on to state that pre-existing mechanisms would address the increases, such as stationary source controls, permitting programs, and air monitoring for ozone, PM2.5, and toxics.[19] The report evidences that the cap and trade regulation is not a program designed to prevent increases - it is a program that freely acknowledges that increases are a real possibility but expects other regulations to deal with, and clean-up, cap and trade's mess. Not only does this violate the Legislature's clear command, but it is an unrealistic expectation. Many of the regulations and programs cap and trade relies on to deal with the increased pollutants are not currently meeting their attainment deadlines or were designed to reduce a specific amount of pollution that was calculated without the increased emissions from this program.[20] The

---

[14] *Id*.

[15] *Id*.

[16] *See* ISOR Appendix P, p. P-42 ("While the cap-and-trade rule in aggregate is designed to reduce GHG emissions, on a local basis there could be the potential for both co-pollutant benefits, as well as dis-benefits.")

[17] H&S Code § 38570(b)(a)(2). (emphasis added).

[18] ISOR p. VII-3.

[19] *Id*.

[20] For example, just this past November the San Joaquin Valley failed to attain its deadline to meet the 1-hour ozone standard. *See, e.g.*, http://www.arb.ca.gov/aqmis2/display.php?param=OZONE&units=007&year=2010&mon=8&day=25&hours=midday&report=7DAY&statistic=DMAX1HR&o3area=&o3pa8=SJV&county_name=&latitude=&basin=&order=&ptype=aqd; http://www.arb.ca.gov/aqmis2/display.php?param=OZONE&units=007&year=2010&mon=9&day=4&hours=midday&report=7DAY&statistic=DMAX1HR&o3area=&o3pa8=SJV&county_name=&latitude=&basin=&order=&ptype=aqd; http://www.arb.ca.gov/aqmis2/display.php?param=OZONE&units=007&year=2010&mon=9&day=30&hours=midday&report=7DAY&statistic=DMAX1HR&o3area=&o3pa8=SJV&county_name=&latitude=&basin=&order=&ptype=aqd.

Board cannot expect these regulations to deal with the increased emissions from cap and trade. AB 32 does not allow the Board to adopt a market-based mechanism that may increase pollutants, and then provides no solution.

Under the proposed regulation, emitters could just as easily choose not to reduce any GHG emissions at all by simply buying credits and offsets. This would result in the equally disproportionate outcome that low income communities of color around the entities would see absolutely no direct or co-benefits from this cap and trade regulation. Industrial polluters in California are predominantly located and tend to cluster in low income neighborhoods and communities of color. A demographic analysis of the communities nearest industrial facilities in California reveals that people of color comprise 58% of the population living within one mile of a facility, and 62% of the population living between one to six miles from a facility. The area within six miles of a facility is densely populated, reaching over 5,000 people per square mile. The demography of populations over six miles away from a facility changes dramatically. People of color comprise only 46% of the population and the density drops to 125 people per square mile. Children of color comprise between 71-74% of children living within 6 miles of a facility and 57% of those living more than 6 miles away.[21] Allowing offsets and credits for these entities means these communities will see no benefits from this regulation. ARB should not allow trading, especially in overburdened communities. The unrestricted trading, reserve credits, and large percentage of offsets allowed in this regulation seriously threatens to further overburden such communities, in violation of AB 32.

B. The Regulation Does Not Deliver Emissions Reductions.

To meet the requirements of AB 32, this regulation must prevent any increase in the emissions of toxic air contaminants or criteria air pollutants.[22] Cap and trade models are not successful prophylactic measures and have proven to be ineffective tools for phasing out carbon use and pollution trading is an ineffective air quality policy with the arguable exception of the Acid Trading Program.[23] Due to over allocation of allowances, low carbon prices, fraudulent transactions and banking (which may result in short term reductions followed by a spike in emissions when banked credits are utilized), pollution trading programs do not significantly reduce air pollution.[24] AB 32 requires ARB to "*design*" the cap and trade program to "*prevent*" any increases and to prevent localized impacts. Even if specific facilities do not increase their emissions, and continue to emit business as usual, this does not maximize co-benefits or prevent localized impacts, and as explained above, relying on other regulations to reduce emissions is inappropriate.

Additionally, pollution trading often does not result in emissions reductions because of increased difficulty monitoring and enforcing emission reductions. Instead of relying on trading, ARB should focus on direct emission reductions - "a greenhouse gas emission reduction action made

[21] *See* Manuel Pastor, Rachel Morello-Frosch, James Sadd, and Justin Scoggins, *Minding the Climate Gap,* http://college.usc.edu/pere/documents/mindingthegap.pdf. Attached as Exhibit 1.

[22] H&S Code § 38570(b)(2).

[23] *See* Environmental Justice Advisory Committee (EJAC) Comments on Scoping Plan, pp. 20-24, at http://www.arb.ca.gov/cc/ejac/proposedplan-ejaccommentsfinaldec10.pdf.

[24] *See* Richard Toshiyuki Drury, *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 Duke Envtl. L. & Pol'y F. 231, 275 (1999).

by a greenhouse gas emission source at that source."[25] By requiring emissions reductions at the source, ARB will provide certainty that emissions reductions will occur and can determine where the reductions will occur. Thus ensuring that environmental justice communities will get an equitable share of the co-benefits of reducing greenhouse gas emissions. In addition, direct emission reduction measures can provide targeted co-benefits and ensure an appropriate level of GHG and co-pollutant reductions.

C. The Regulation Fails to Get Maximum Environmental and Economic Benefit for California.

In order for a market-based mechanism to meet the requirements of AB 32, it must maximize additional environmental and economic benefits for California.[26] With its weak "cap" and use of offsets, which virtually eliminate any requirement to reduce emissions within California, this regulation fails on both accounts.

If the Board adopts the cap and trade regulation, instead of direct emissions reductions, then the unbridled use of offsets from out-of-state will mean that the jobs and economic benefit resulting from those reductions will not benefit California. The Legislature surely did not intend that offsets from planting trees in Canada would be an appropriate market-based mechanism.

1. The "Cap" doesn't maximize environmental benefits.

This regulation not only fails to *maximize* environmental benefits, it fails to get *any* benefits at all in the first and fourth year. The proposed "cap" begins in 2012 at 165.8 million metric tons of carbon dioxide equivalent (MMTCO2e), the amount ARB estimates will be business as usual for the covered entities.[27] Absolutely no reductions will be required that year. Then the cap *increases* to 394.5 MMTCO2e in 2015 to include fuel suppliers at business as usual.[28] Again, another year without any reductions. The cap fails to meet the requirements of AB 32 to achieve the maximum technologically feasible reductions. It also makes it unlikely that reductions will occur before 2020 as compliance is pushed further out. By providing maximum flexibility early in the program, ARB's rule allows polluters to delay the harder, more costly choices until later in the program, thereby increasing the likelihood of leakage and industry pressure to postpone the compliance deadline beyond 2020, which ARB has succumbed to in the past.[29] In addition, the "cap" excludes agriculture, biofuels and bioenergy - significant sources of GHG emissions. Treating biofuels and bioenergy as zero emissions and excluding them from the cap is not supported by the best science nor ARB's own analysis and it violates AB 32's mandate to achieve the maximum reductions.[30]

---

[25] H&S Code § 38505(e).

[26] H&S Code § 38570(b)(3).

[27] ISOR, p. II-3; Appendix E: Setting the Program Emissions Cap, p. E-6.

[28] *Id*.

[29] For example the Heavy Duty In-use Diesel Truck & Bus rule, set to be heard this month and the Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Railyards.

[30] See CARB, Carbon Intensity Lookup Table for Gasoline and Diesel, and their Fuel Substitutes, available at: http://www.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf, and Lifecycle Analysis - Fuel Pathways available at: http://www.arb.ca.gov/fuels/lcfs/workgroups/workgroups.htm#pathways; EDF, et. al, letter to ARB re: Recommendation to require fuel providers to hold allowances to cover the greenhouse gas emissions released as a consequence of the use of transportation biofuels. (December 7, 2010); Californians Against Waste, et al, letter to ARB re: Request to include bioenergy emissions under the cap and account for the greenhouse gas emissions

2. Offsets do not maximize environmental or economic benefits for California.

The regulation proposes to allow entities to use offsets for up to 8% of its compliance obligation - or to put it another way - nearly 100% of the entities required emissions reductions.[31] In addition, the regulation allows offsets outside of the regulated sectors and outside of California, and possibly the United States. In no way does this structure maximize environmental or economic benefits for California as required by AB 32.

This regulation is structured in such a way that an entity can comply without actually making any emissions reductions. A review of Figure E-3 in Appendix E of the staff report reveals that through 2016 the combined allowances and offsets would allow greater GHG emissions than the projected business as usual emissions of the covered entities without this regulation.[32] Clearly, this does not comply with the requirements of AB 32 to achieve the maximum reductions feasible and maximize the benefits for California.

The Scoping Plan failed to recommend any GHG measures for agricultural operations, and instead opted to allow the entire agricultural sector to escape regulation under AB 32. This leaves the only GHG reductions from agricultural sources to come from offsets.[33] In the before mentioned legal challenge, the Petitioners argue that ARB violated Health & Safety Code §§ 38651(a) and (b) when ARB failed to include cost effective measures – other than offsets – for agricultural sources in the Scoping Plan. [34] Since there are feasible and cost-effective pollution controls available, including methane reductions from manure digesters, the Scoping Plan should have recommended such measures rather than relying on only offsets.[35] Including the entire agricultural sector only in offsets violates Health & Safety Code § 38570(b)(3), which requires the ARB to "maximize additional environmental benefits . . . for California." An offset program that only rewards agricultural sources for those projects that qualify for offsets, while forgoing feasible and cost-effective reductions that do not qualify for offsets, violates section 38570(b)(3).[36]

Further, by allowing allowance trading and offsets out of state, ARB is allowing the new jobs that will be created by investment in green technology to be created in other states or countries, rather than in California. In this economy, squandering opportunities to create investments and jobs within California is unthinkable, irresponsible, and contrary to the mandates of AB 32. AB 32 offers the promise of a new green economy in California and requires any market-based mechanism to maximize economic benefits for California. For the Board to consider adopting this regulation with

---

associated with biomass production and combustion (December 9, 2010).

[31] ISOR p. II-5.

[32] ISOR, Appendix E, p. E-10.

[33] Agricultural operations may only provide offsets if the offsetting activity complies with Health & Safety Code § 38652(d).

[34] *Association of Irritated Residents, No. CPF-09-509562.*

[35] *See* pp. ARB033781, ARB 017922 of the Administrative Record in *Association of Irritated Residents v. California Air Resources Board*, No. CPF-09-509562 (San Francisco County Superior Court).

[36] By proposing granting offsets for manure digesters, ARB actually contradicts itself. In the Scoping Plan, ARB declined to require manure digesters as a direct regulation yet now proposes an offset protocol by which ARB concludes that reductions are both feasible and real, permanent, quantifiable, verifiable, and enforceable. ARB now demonstrates that direct regulation covering manure digesters should be required as feasible.

these offset provisions is irresponsible to the millions of Californians who could benefit from the investments and jobs lost to other states.

Lastly, the offsets provisions directly violate AB 32's requirement that ARB "direct public and private investment toward the most disadvantaged communities in California."[37] Offsets from out-of-state plainly violate this mandate. Linking California's trading program to the Western Climate Initiative could also contravene AB 32's requirement that greenhouse gas emission reductions achieved are enforceable by ARB.[38] ARB has no authority to enforce the obligations of out-of-state entities.

IV. ARB'S ANALYSIS OF ALTERNATIVES TO THE PROPOSED REGULATION VIOLATES THE CALIFORNIA ENVIRONMENTAL QUALITY ACT.

AB 32 requires "the state board [to] adopt greenhouse gas emission limits and emission reduction measures by regulation," which triggers the CEQA requirement for an Environmental Impact Report (EIR).[39] As a certified regulatory program, ARB discussed possible impacts in the form of a Functional Equivalent Document (FED) in lieu of an Environmental Impact Report, pursuant to Public Resources Code § 21080.5.

A. ARB failed to adequately analyze project alternatives in the Functional Equivalent Document.

Under CEQA, ARB must examine a reasonable range of alternatives to the proposed project that feasibly meet most of the project's basic objectives while avoiding or substantially reducing the significant effects of the project.[40] The selection of alternatives should foster informed decisionmaking and public participation.[41] CEQA also makes clear that the purpose of the alternatives analysis is to focus on alternatives that are capable of "avoiding or significantly lessening any significant effects of the project, even if those alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[42] In evaluating alternatives, the ARB must include "sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project."[43]

For purposes of developing and evaluating the proposed project and alternatives, ARB derived the following objectives from AB 32:[44]

1. Achieve technologically feasible and cost-effective aggregate reductions
2. Distribute allowances equitably
3. Avoid disproportionate impacts
4. Credit early action

---

[37] H&S Code § 38565.

[38] H&S Code § 38562(d)(1).

[39] H&S Code § 38562(a).

[40] 14 California Code of Regulations (CCR) § 15126.6(a).

[41] 14 CCR § 15126.6(a).

[42] 14 CCR § 15126.6(b).

[43] 14 CCR § 15126.6(d).

[44] Functional Equivalent Document ("FED") at 365.

5. Complement existing air standards
6. Be cost-effective
7. Consider a wide range of public benefits
8. Minimize administrative burden
9. Minimize leakage
10. Weigh relative emissions
11. Achieve real emission reductions
12. Achieve reductions over existing regulation
13. Complement direct measures
14. Consider emissions impacts
15. Prevent increases in other emissions
16. Maximize co-benefits
17. Avoid duplication

Additional project objectives included in the Scoping Plan:
18. Establish declining cap
19. Reduce fossil fuel use
20. Link with partners
21. Design enforceable, amendable program
22. Ensure emissions reductions

Having articulated these objectives (notably, without regard to their accuracy, and to the statutory requirements in AB 32), ARB then presented a cursory, circular and results-oriented description of five alternatives to the proposed plan. The five alternatives ARB identified were: (1) no project, (2) implement only additional source-specific command-and-control regulations; (3) carbon fee; (4) California cap and trade program linked with a Federal cap and trade program; and (5) alternatives to specific cap and trade program design features.

1. No Project.

This Alternative comprises the bulk of the alternatives analysis. The section generally describes sector by sector the business as usual impacts compared to the proposed cap- and-trade regulation.[45] ARB concludes that absent the proposed cap and trade regulation, the goal of AB32 will not be attained.

2. Implement Only Additional Source-Specific Command-And-Control Regulations.

This alternative purports to consider implementation of source-specific emission limits by regulation. However, in its Executive Summary, ARB demonstrates its preference for cap and trade above all other forms of controls with an unsubstantiated conclusion that direct regulations cannot provide the same assurances for reductions that a cap and trade program because of an uncertainty in

[45] *See e.g.*, FED at 371.

emissions reductions caused by the diverse nature of many industrial processes and a lack of data.[46] This conclusion is not only nonsensical to justify the inclusion of these same diverse and data-poor industrial processes in a cap and trade program (under which all reductions must be real, permanent, quantifiable, verifiable, and enforceable) but is unsubstantiated, based only on the excuse that ARB does not have the data to properly regulate these industries.

In its analysis ARB acknowledges that command-and-control regulations "can take several forms."[47] However, instead of performing a meaningful analysis of any of the forms possible ARB "assumed that only regulated emission limits would be implemented" on sources (as opposed to technology).[48] As such, ARB failed to identify and analyze the specific command-and-control regulations which would be appropriate here. Instead ARB summarily states that the specifics necessary to conduct such analyses "would depend on the information that is learned in the future during the regulatory development process."[49]

And yet, prior to initiating any "regulatory development process," ARB identifies five objectives with which source-specific emission limits would not be likely to achieve in Table 6-1 on "Comparative Likelihood That Alternatives Achieve Project Objectives."[50] Table 6-1 ranks on a scale of high, medium, and low the likelihood that each alterative considered would be likely to achieve each of the 22 objectives ARB identified. Here, each of the "no or low likelihood to achieve objective" ratings received by the source-specific command-and-control regulation alternative pertained to objectives that were either not applicable to source-specific command-and-control regulations or not analyzed.[51]

First, stated objective two is to distribute allowances equitably. Under a source-specific emissions limit program there are no allowances to distribute and thus the objective is inapplicable here. However, the underlying intent of the specified objective appears is to ensure equitable treatment of entities. In this case that purpose is served in that there is an equitable distribution of zero allowances.

Stated objective five is to complement existing air standards. While Table 6-1 rates source-specific emissions limits as low here, nowhere else in the FED is the issue addressed. In fact, the brief program description on page 388 discusses how this alternative would "likely focus primarily on the industrial sector because the transportation, electricity and natural gas sectors are already extensively addressed..."[52] Given this cursory analysis, it appears that source-specific regulations would in fact be designed to complement existing air standards.

---

[46] ISOR at IV-3,4.

[47] FED at 378.

[48] FED at 387-388.

[49] FED at 388.

[50] FED at 395.

[51] *Id*.

[52] FED at 388.

Stated objective nine is to "minimize leakage." However, in the objectives section ARB specifically notes that "command-and-control regulations can be designed to minimize or avoid leakage."[53] No further explanation as to how leakage is caused, or could be minimize under this alternative, other than to say that administrative burdens may increase, is provided.

Stated objective 18 is to establish a declining cap. This objective is either inapplicable, as source-specific emission limits envision no cap to begin with, or it is fulfilled by analogy. The intent of the objective is to "cover 85% of the state's GHG emissions in furtherance of California's mandate to reduce GHG emissions to 1990 levels by 2020."[54] Since there is no "cap" in source-specific regulations, the objective of a "declining cap" is not applicable. However, the intent of the objective is to continually lower emission levels and this intent could be fulfilled through a source specific regulatory scheme. In fact, the U.S. EPA regularly writes mobile source emission regulations (source-specific command-and-control regulations) that increase in stringency over time.

Lastly, stated objective 20 is to link with other Western Climate Initiative ("WCI") partners to create a regional market system. While Table 6-1 concludes there is no or a low likelihood of achieving this objective, there is no elucidating discussion as to why it is not possible. Generally, command-and-control regulations do not envision a market system; however, no aspect of such a program precludes regulatory schemes from linking together partners in some way.

In failing to fully envision, consider, and describe how source-specific emission limits could operate in California, ARB has not included sufficient information on source-specific emission limits "to allow meaningful evaluation, analysis and comparison with the proposed project."[55]

ARB preemptively rejects this alternative as "challenging,"[56] but acknowledges that "the certainty about avoiding localized increases in emissions could be an environmental advantage of this alternative."[57] This is a key advantage for environmental justice communities, and does not allow ARB to so quickly dismiss it in favor of a cap and trade program.

3. Carbon Fee.

ARB describes implementation of a carbon fee as similar to cap and trade in that both programs place a price on GHG emissions, which thereby provides an incentive for businesses and individuals to reduce their emissions.[58] Similarities between the two programs, include "reporting, monitoring, verification of covered entities' GHG emissions."[59] ARB states that the main difference

[53] FED at 389.

[54] FED at 376.

[55] 14 CCR § 15126.6(d).

[56] *Id*.

[57] FED at 390.

[58] *Id*.

[59] ISOR at IV-5.

between the programs is that implementing a carbon fee "provides price certainty for the covered entities" but lacks emission certainty.[60]

ARB's analysis of a carbon fee is fundamentally flawed in again failing to envision and analyze how the program would actually work. Thus, it fails to meet CEQA's requirement for "sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project."[61]

Instead of developing a real alternative, ARB focuses on elements of the proposed cap and trade program which have already been developed and then unfairly compares the developed proposal with the mere title "carbon fee" absent a more developed program which would allow for a more reasoned analysis. For example, ARB acknowledges that the efficiency of a carbon fee could be enhanced by pairing it with "complementary approaches, such as performance standards," yet it "assume[s] that only a carbon fee would be implemented."[62] Also, ARB states that to avoid passing costs on to consumers, a system of offsets could be used, but it fails to consider the alternative with such a system and instead criticizes a carbon fee as passing costs onto consumers. Additionally, ARB finds that the potential for leakage is increased with a carbon fee as opposed to a cap and trade system, but fails to consider how to tailor fee levels to market influences, while at the same time stating that it can be done.[63]

In ARB's "Comparative Likelihood That Alternatives Achieve Project Objectives," Table 6-1, four objectives are identified as having a "no or low likelihood to achieve objective."[64] Stated objective six, to be cost-effective, is identified as not likely to be achieved. Nowhere in ARB's discussion of a carbon fee is cost effectiveness directly discussed. In fact, ARB notes so many potential similarities between cap and trade and a carbon fee, without mention of the apparent cost ineffectiveness associated with a carbon fee that one can only speculate as to how cap and trade has a high likelihood of cost effectiveness while a carbon fee has a low likelihood of cost effectiveness.

ARB ranks implementation of a carbon fee as unlikely to minimize leakage, in stated objective nine.[65] However, ARB's incomplete analysis failed to consider a carbon fee program that provides opportunities to tailor the fee level to market influences, while at the same time acknowledging that such mechanisms are possible and that they could decrease the potential for leakage.[66] Without conducting an analysis that fully considers what the likely implementation of a carbon fee program would include, ARB's conclusion is preemptive and arbitrary.

---

[60] *See e.g.* ISOR at IV-5.

[61] 14 CCR § 15126.6(d).

[62] FED at 391.

[63] FED at 392.

[64] FED at 395.

[65] *Id.*

[66] FED at 392.

ARB's stated objective 18 is to establish a declining cap.[67] This objective is either inapplicable, as this implementation of a carbon fee envisions no cap to begin with, or it is fulfilled by analogy. The intent of the objective is to "cover 85% of the state's GHG emissions in furtherance of California's mandate to reduce GHG emissions to 1990 levels by 2020."[68] Since there is no "cap" in this vision of a carbon fee, the objective of a "declining cap" is not applicable. However, the intent of the objective is to continually lower emission levels and this intent could be fulfilled through increasing the carbon fee.

Lastly, stated objective 20 is to link with other WCI partners to create a regional market system.[69] While Table 6-1 concludes there to be no or a low likelihood of achieving this objective, there is no elucidating discussion as to why is it not possible for WCI partners to also adopt a carbon fee.

In failing to fully envision, consider, and describe how a carbon fee could operate in California, ARB has failed to provide sufficient information allow a meaningful evaluation of a carbon fee.

4. California Cap and Trade Program Linked With A Federal Cap and Trade Program.

ARB discusses the possibility of linking the proposed California cap and trade program to a Federal cap and trade program in the alternatives analysis sections of both the Initial Statement of Reasons and the Functional Equivalent Document. However, linking a California cap and trade program to a non-existent Federal program is not an alternative at all. In fact, it is not an alternative for two reasons. First, an alternative must be an alternative to the proposed program. Here, the proposed program is cap and trade. The alternative discussed is the exact same cap and trade program but with a Federal partner. Ergo cap and trade is not an alternative program to cap and trade, regardless of what partnerships are formed. Secondly, an alternative that has "no prospect...in the near term," contains no detail whatsoever, has envisioned no mechanisms for implementation, enforcement, etc., is not a reasonable alternative.[70] Thus, any linkage between a California cap and trade program and a Federal cap and trade program ought to have been discussed as an alternative cap and trade design feature and not under the guise of a legitimate cap and trade program alternative.

5. Alternatives to Specific Cap and Trade Program Design Features.

ARB discusses five design features possibly applicable to the proposed cap and trade program. Conspicuously absent from the alternatives analysis is an alternative that geographically limits offsets.

---

[67] FED at 395.

[68] FED at 376.

[69] FED at 395.

[70] ISOR at IV-6; 14 CCR § 15126.6(a).

B. ARB failed to adequately analyze a range of project alternatives in the Functional Equivalent Document.

ARB did not satisfy the CEQA requirement to examine a reasonable range of alternatives. Under CEQA, ARB must examine a reasonable range of alternatives to the proposed project that feasibly meet most of the project's basic objectives while avoiding or substantially reducing the significant effects of the project.[71] CEQA does not supply the number of alternatives that are necessary for a meaningful analysis to take place, but it makes clear that a rule of reason governs requiring the EIR document to set forth "those alternatives necessary to permit a reasoned choice."[72]

In the ISOR, ARB purports to analyze four alternatives. In reality only two alternatives are presented. The "no project" alternative is not a real option in this case given the statutory obligation provided in AB 32. Second, linking a California cap and trade program to a non-existent Federal cap and trade program is not a reasonable alternative for the reasons stated above (see section IV.A.). Lastly, presenting program design features which do not alter the program itself is not a project alternative. For these reasons, a mere two alternatives were considered in the FED.

Given the size and implication of a statewide cap and trade program, as well as the broad range of possible avenues to attain the achievement of AB32, the rule of reason dictates that a reasonable range of alternatives exceed two. Therefore, ARB has failed to satisfy CEQA's requirement to examine a range of reasonable alternatives to the project.[73]

V. THE ANALYSIS OF OFFSETS PRODUCED BY MANURE DIGESTERS VIOLATES CEQA.

The FED finds no impact on air quality and no cumulative impact on air quality from implementation of the Compliance Offset Protocol for Manure Digesters. The FED concedes that engines combusting digester gas emit criteria and toxic emissions.[74] However, the FED assumes that *all* offset generating projects would be subject to Clean Air Act requirements and local land use decisions that would fully mitigate the criteria and toxic emissions. The FED fails to demonstrate that to be the case, or to require air pollution controls as a condition of receiving offsets. For the same reason, the FED has failed to adequately analyze the emissions of criteria and toxic air pollutants from offsets produced at dairy digesters when there is no reasonable basis to conclude that all such projects would be reduced to a less than significant level (there is no substantial evidence supporting this assumption).

[71] 14 CCR § 15126.6(a).

[72] 14 CCR § 15126.6(f).

[73] 14 CCR § 15126.6(a).

[74] FED at 239-240.

VI. CONCLUSION

For the reasons set forth above, the Board should not adopt the proposed cap and trade regulation. Instead, the undersigned organizations are asking the Board to consider the impact of the Superior Court's ruling in the pending Scoping Plan challenge, to prepare a proper foundational analysis for whether cap and trade is the maximum feasible and cost-effective reduction, to adopt more appropriate direct regulations and market-based compliance mechanisms than a cap and trade rule, and meaningfully analyze a reasonable range of alternatives in accordance with CEQA.

The Board should seize this opportunity to set California on a path that protects vulnerable communities, fosters green jobs, and stimulates a path to a green economy for California.

Sincerely,

Sofia L. Parino
Center on Race, Poverty & the Environment

Tom Frantz
Association of Irritated Residents

Penny Newman
The Center for Community Action and Environmental Justice

Teresa DeAnda
El Comite para el Bienestar de Earlimart

Martha Guzman Aceves
California Rural Legal Assistance Foundation

Anna Yun Lee
Communities for a Better Environment

Jane Williams
California Communities Against Toxics

Nicole Capretz
Environmental Health Coalition

Int. J. Environ. Res. Public Health **2011**, *8*, 1441-1459; doi:10.3390/ijerph8051441

OPEN ACCESS

International Journal of
Environmental Research and Public Health
ISSN 1660-4601
www.mdpi.com/journal/ijerph

Article

Playing It Safe: Assessing Cumulative Impact and Social Vulnerability through an Environmental Justice Screening Method in the South Coast Air Basin, California

James L. Sadd [1], Manuel Pastor [2], Rachel Morello-Frosch [3,4,*], Justin Scoggins [2] and Bill Jesdale [3]

[1] Department of Environmental Science, Occidental College, Los Angeles, CA 94001, USA; E-Mail: jsadd@oxy.edu

[2] Program on Environmental and Regional Equity, University of Southern California, Los Angeles, CA 90089, USA; E-Mails: mpastor@college.usc.edu (M.P.); scogginj@college.usc.edu (J.S.)

[3] Department of Environmental Science, Policy and Management, University of California at Berkeley, Berkeley, CA 94720, USA; E-Mail: bill.jesdale@gmail.com (B.J.)

[4] School of Public Health, University of California at Berkeley, Berkeley, CA 94702, USA

* Author to whom correspondence should be addressed; E-Mail: rmf@berkeley.edu; Tel.: +1-510-643-6358.

Received: 22 March 2011; in revised form: 15 April 2011 / Accepted: 20 April 2011 / Published: 6 May 2011

Abstract: Regulatory agencies, including the U.S. Environmental Protection Agency (US EPA) and state authorities like the California Air Resources Board (CARB), have sought to address the concerns of environmental justice (EJ) advocates who argue that chemical-by-chemical and source-specific assessments of potential health risks of environmental hazards do not reflect the multiple environmental and social stressors faced by vulnerable communities. We propose an Environmental Justice Screening Method (EJSM) as a relatively simple, flexible and transparent way to examine the relative rank of cumulative impacts and social vulnerability within metropolitan regions and determine environmental justice areas based on more than simply the demographics of income and race. We specifically organize 23 indicator metrics into three categories: (1) hazard proximity and land use; (2) air pollution exposure and estimated health risk; and (3) social and health vulnerability. For hazard proximity, the EJSM uses GIS analysis to create a base map by intersecting land use data with census block polygons, and calculates hazard

proximity measures based on locations within various buffer distances. These proximity metrics are then summarized to the census tract level where they are combined with tract centroid-based estimates of pollution exposure and health risk and socio-economic status (SES) measures. The result is a cumulative impacts (CI) score for ranking neighborhoods within regions that can inform diverse stakeholders seeking to identify local areas that might need targeted regulatory strategies to address environmental justice concerns.

Keywords: environmental justice; environmental health; geographic information systems; social vulnerability; cumulative impacts

1. Introduction

Air pollution has long been recognized as a high priority for both environmental health and justice by researchers, government regulators, and community residents [1-4] In California in particular, there is consistent evidence indicating patterns of both disproportionate exposure to air pollution and associated health risks among minority and lower-income communities [5-9]. These same communities also face challenges associated with low social and economic status, including psychosocial stressors, which make it more difficult to cope with exposures and may be connected with the persistence of environmental health disparities [10-12].

Environmental justice (EJ) advocates have argued that scientists and regulatory agencies should better account for the cumulative impacts (CI) of environmental and social stressors in their decision-making and regulatory enforcement activities [13,14]. These advocates and others have suggested that traditional chemical-by-chemical and source-specific assessments of potential health risks of environmental hazards do not reflect the multiple environmental and social stressors faced by vulnerable communities, which can act additively or synergistically to harm health [15-17]. Regulatory agencies are beginning to respond to the National Research Council's call for the development "cumulative risk frameworks" within their scientific programs and enforcement activities [18]. In California, the Office of Environmental Health Hazard Assessment maintains a Cumulative Impacts and Precautionary Approaches Work Group which has advised the Agency in its efforts to develop guidelines for consideration of cumulative impacts within the different programs of the California Environmental Protection Agency [19].

This approach represents an advance from earlier definitions of environmental justice concerns which emphasized the racial/ethnic make-up or income levels of the communities in question (such as President Clinton's Executive Order #12898 which directed federal agencies to focus on "minority communities and low-income communities"). Still, the work to develop more sophisticated tools for assessing cumulative impacts and environmental disparities is in its infancy. For example, Su and colleagues developed an index to characterize inequities by race/ethnicity and SES in the cumulative impacts of environmental hazards at the regional level, which allows for comparisons at large geographic scales [20]. However, this approach is not conducive to ranking and assessing distributional patterns of CI at more local, neighborhood-level scales within regions, which has been a primary concern for EJ advocates and some regional air quality agencies. These within-region CI

assessments are important because industrial clusters, as well as land-use planning decisions, are often rooted within metropolitan regions; thus regulatory interventions to mitigate the cumulative impact of environmental and social stressors often require regionally-specific strategies [21,22].

The U.S. EPA has also been developing a GIS-based cumulative impacts screening tool, known as the Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT) [23] to identify areas with disproportionately high and adverse environmental health burdens nationwide. EJSEAT defines a set of 18 cumulative impacts indicator metrics organized into four categories (demographic, environmental, compliance, and health impact), scales these values within each state (rather than, say, the metropolitan region or the air basin) and then applies to each census tract a composite score. However, EJSEAT is considered to be a "draft tool in development, currently under review and intended for internal EPA use only" and it has certain limitations due to the requirement for national consistency. These limitations include the fact that much of the non-Census data used to develop indicators is limited to that generated by EPA itself and sources of EJ concern, such as land use activity, are not captured. Additionally, county level health impacts information is imputed to census tracts, thus, ignoring much of the important variation by neighborhood. Compliance data, which consists of inspections, violations, formal actions and facility density, is problematic; for example, more inspections could indicate better regulatory oversight or worse behavior on the part of facilities. Moreover, violations and actions are not ranked by severity, leading one assessment to suggest that "the application of compliance statistics are so uncertain in meaning that their use as an indicator is highly questionable" [24].

We present an Environmental Justice Screening Method (EJSM) that facilitates examination of patterns of cumulative impacts from environmental and social stressors across neighborhoods within regions. We demonstrate an application of the EJSM to the six county area covered by the Southern California Association of Governments (SCAG), a region that is home to nearly half (48.8%) of California's population. We specifically sought to create an EJSM that relied on publicly available data in order to facilitate its application to different contexts, as well as the addition of new data layers and the updating of information as needed.

The analytical work to develop the EJSM was solicited and funded by the California Air Resources Board (CARB). Therefore, the method was developed with considerable input from Agency scientists as well as an external scientific peer review committee that provided ongoing advice on methods and metrics selection. We also solicited feedback from environmental health and environmental justice advocates regarding appropriate metrics and we previewed preliminary results for their feedback. This strategy of soliciting peer review from agency personnel, scientific colleagues and community stakeholders was aimed at ensuring that the final EJSM was methodologically sound and transparent to diverse audiences in the regulatory, policy and advocacy arenas. As discussed below, the multiple audiences also required certain trade-offs; in particular, we made several choices to insure that the method would be more easily understood by community stakeholders as that would encourage their acceptance of the EJSM as a reasonable approach for regulatory guidance.

2. Experimental Section

2.1. Methods

The EJSM allows a mapping of cumulative impacts using a set of 23 health, environmental and social vulnerability measures organized along three categories: (1) hazard proximity and land use; (2) estimated air pollution exposure and health risk; (3) social and health vulnerability. Individual indicators and data sources are summarized in Table 1.

Table 1. Summary of cumulative impact and vulnerability indicators used in the EJ Screening Method.

Sensitive land use indicators.

INDICATOR	GIS SPATIAL UNIT	SOURCE/DATE
Childcare facilities	Land use polygons	Southern California Association of Governments (SCAG), 2005
	Buffered points	Dunn and Bradstreet by SIC code, 2006
Healthcare facilities	Land use polygons	SCAG 2005; California Spatial Information Library
Schools	Land use polygons	SCAG 2005
	Buffered points	CA Dept of Education 2005
Urban Playgrounds	Land use polygons	SCAG 2005

Environmental hazards and social vulnerability indicators.

INDICATOR	GIS SPATIAL UNIT	SOURCE/DATE
Hazardous Facilities and Land Uses		
Air Quality Hazards		
Facilities in California Community Health Air Pollution Information System (CHAPIS)	Point locations	CA Air Resources Board (CARB) 2001
Chrome-platers	Point locations	CARB 2001
Hazardous Waste sites	Point Locations	CA Dept. Toxic Substances Control 2004
Hazardous Land Uses		
Railroad facilities	Land use polygons	SCAG 2005
	Line Features	National Transportation Atlas Database (NTAD)
Ports	Land use polygons	SCAG 2005
Airports	Land use polygons	SCAG 2005
	Line Features	NTAD 2001
Refineries	Land use polygons	SCAG 2005
Intermodal Distribution	Land use polygons	SCAG 2005
	Line Features	NTAD 2001

Table 1. *Cont.*

INDICATOR	SOURCE/DATE
Health Risk and Exposure all at census tract level	
Risk Screening Environmental Indicators (RSEI) toxic concentration hazard score	USEPA 2005
National Air Toxics Assessment respiratory hazard for air toxics from mobile and stationary emissions	USEPA 1999
Estimated cancer risks from modeled ambient air toxics concentrations from mobile and stationary emissions	CARB 2001
$PM_{2.5}$ estimated concentration interpolated from CARB's monitoring data	CARB 2004–06
Ozone estimated concentration interpolated from CARB's monitoring data	CARB 2004–06
Social and Health Vulnerability all at census tract level	
% people of color (total pop–non-Hispanic white)	US Census 2000
% below twice the national poverty level	US Census 2000
Home Ownership–% living in rented households	US Census 2000
Housing Value–median house value	US Census 2000
Educational attainment–% >age 24 with <high school	US Census 2000
Age of residents–% <age 5	US Census 2000
Age of residents–% >age 60	US Census 2000
Linguistic isolation–% residents under age 4 in households where no one over age 15 speaks English well	US Census 2000
Voter turnout–% votes cast in general election	UC Berkeley Statewide Database 2000
Birth outcomes–% preterm and small for gestational age	CA Dept Public Health Natality Files 1996–2003

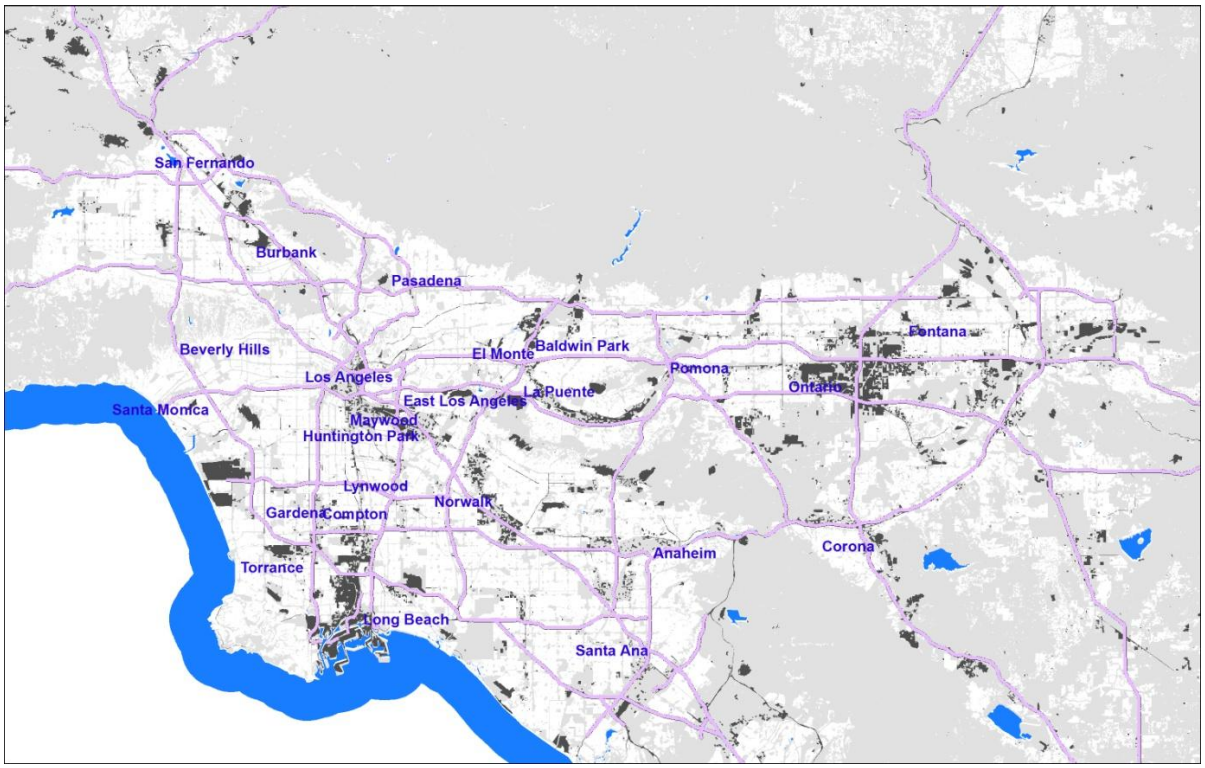
The EJSM involves a four-step process: (a) an initial GIS spatial assessment to create a detailed regional base map for estimating hazard proximity; (b) the use of GIS techniques to appropriatly summarize the resulting hazard proximity indicators for each of the region's census tracts; (c) the coupling of the resulting tract level scores with tract level data on air pollution exposure and/or health risk as well as data on social and health vulnerability, (d) a cumulative ranking based on all the tract-level indicators that is then presented visually.

The regional base map is constructed by integrating specified residential and sensitive land use classes (see below) as classified by the California Air Resources Board [25]. This focuses CI screening on areas with land uses where people reside or locations hosting schools, hospitals, day care centers, parks and other sensitive receptor locations. Areas that are, for example, strictly industrial or commercial or undeveloped open space are not included in the regional base map (see Figure 1).

To geographically link the regional base map with the tract-level metrics of social/health vulnerability and air pollutant exposure/health risk, the residential and sensitive land use polygons were intersected using a GIS procedure with census block polygons from the 2000 Census, to create a base map composed of neighborhood-sized cumulative impact (CI) polygons, each with a known land use class and attribute key to attach census information. The base map for the Southern California area

we developed consists of over 320,000 CI polygons, with the median area of these polygons being 0.017 square kilometers. There are slightly less than 145,000 populated census blocks in the same area, suggesting that our base units are generally portions of blocks.

Figure 1. Map of a portion of the study area showing CI Polygons in white, and areas not scored (including open space, vacant land, industrial land use, *etc.*) in gray.



2.2. Data and Scoring

The regional base map and the buffer-based hazard proximity scoring were derived using GIS. We also used Statistical Analysis Software (SAS) 9.2 and Statistical Package for the Social Sciences (SPSS) 17.0 for distributional calculations and tract-level scoring to facilitate documentation and error-checking.

The first step in our analysis involved attaching to each of the CI polygons on our regional base map a set of hazard proximity indicators and then summarizing these to create scores at the tract level. We then attached the other metric categories (air pollution exposure and health risk; and social and health vulnerability) and calculated a total CI score. Examining each metric category separately and then combining them into a total score facilitates screening for relative cumulative impacts of environmental and social stressors between neighborhoods in a structured manner that can inform regulatory decision-making in diverse regulatory and community contexts [26].

2.2.1. Hazard Proximity and Land Use Indicators

This category captures the location of stationary emission sources and sensitive land uses based on the California Air Resources Board (CARB) Air Quality and Land Use Handbook which recommends buffer distances to separate residential and other sensitive land uses from potential hazards in order to

protect susceptible populations.[25] Susceptible populations are considered to be young children, pregnant women, the elderly, and those with existing respiratory disease, who are especially vulnerable to the adverse health effects of air pollution [27]. The non-residential sensitive land uses indicated by CARB include schools, childcare centers, urban playgrounds and parks, and health care facilities, and senior residential facilities.

Residential and sensitive land use features were mapped using several data sources, including regional land use spatial data from the Southern California Association of Governments (SCAG) [28], state regulatory agency databases, and geocoded locations from address lists. The residential uses were straightforward as housing is clearly delineated in the SCAG 2005 land use data layer. That layer also had several of the non-residential sensitive uses. However, not all sensitive land uses are available as polygon features in this data layer, due to limitations either of the spatial resolution or other issues. For example, some commercial and other facilities contain childcare centers or health care facilities that are not mapped separately. In addition, because of a recent boom in school construction in California, some schools post-date the vintage of the SCAG land use layer.

To address this shortcoming, point locations for these additional sensitive land use features were identified from other data sources, and address geocoding was used to create point feature spatial layers. School location points, for example, were automated using the address list provided by the California Department of Education (2005); public and private schools were included. Childcare centers were automated from the addresses provided from a search of Standard Industrial Code (SIC) 8350 and 8351 using the D&B (formerly Dunn and Bradstreet) Business Information Service; senior housing facilities were similarly automated (SIC 8361). Point locations of healthcare facilities were obtained from the California Spatial Information Library (http://www.atlas.ca.gov/download.html). To avoid duplication with polygon features, any point feature that intersected an equivalent polygon feature was dropped—for example, a point location for a school that is located within a SCAG land use school polygon was deleted.

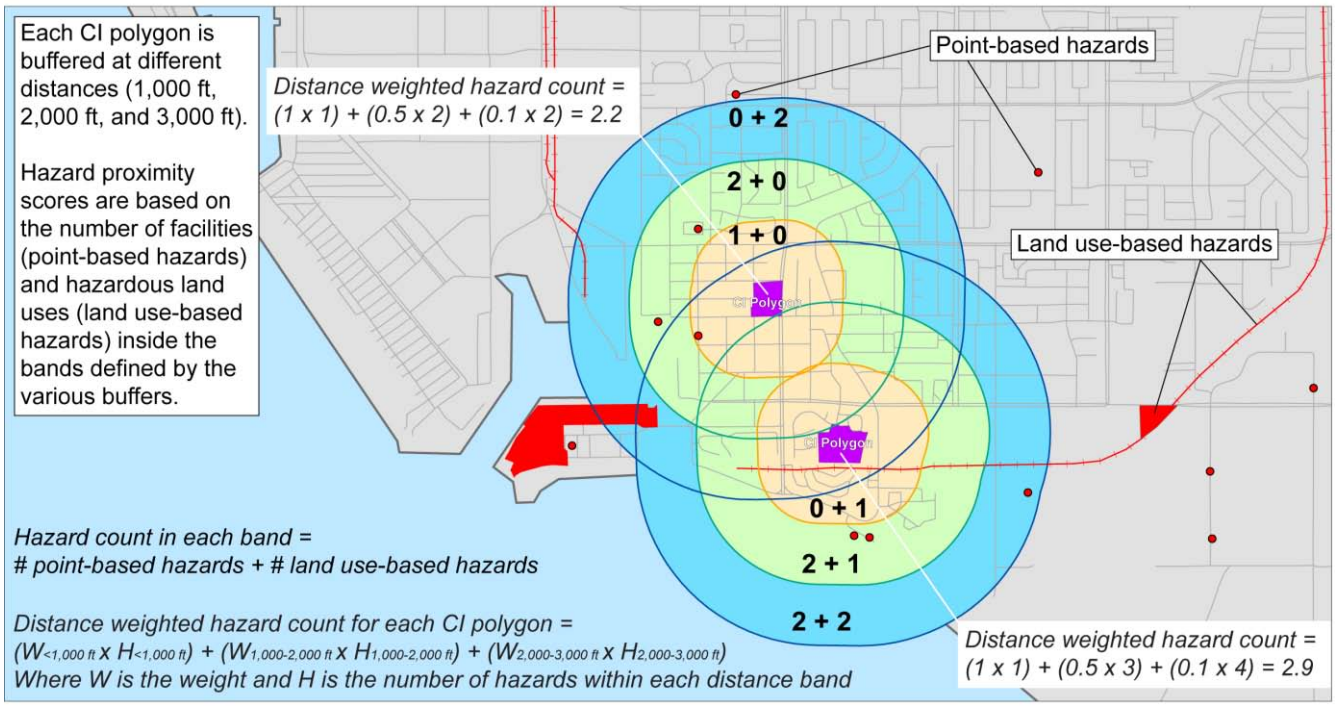
Finally, because representing these features as dimensionless points would result in misclassification of proximity metrics, we assigned a minimum area to each point feature by creating circular buffers. The size of these buffers was selected based upon the area of the smallest equivalent land use in the SCAG Land Use data layer, with the rationale being that the smallest SCAG polygons represent the limit of the spatial resolution of the SCAG data, and smaller features were simply not mapped.

We then added to the map point source locations prioritized by CARB as significant sources of air pollution and also prioritized in community scoping sessions as locations of concern. Point feature locations include: (a) facilities from the Community Health Air Pollution Information System (CHAPIS)—a subset of the California emissions inventory with criteria and air toxics emissions of primary concern for health impacts [29]; (b) chrome-plating facilities identified from the California air toxics emissions inventory [30]; and (c) selected hazardous waste facilities from the California Department of Toxic Substances Control (DTSC) [31]. Stationary emission sources prioritized by CARB (CARB 2005) include rail facilities, airports, intermodal distribution facilities, refineries and ports where diesel emissions are concentrated; these are added as polygon and/or line features from the land use layer.

Each CI polygon—consisting of either a residential or sensitive land use—was scored as follows. We first constructed buffers at 1,000 feet, 2,000 feet, and 3,000 feet (*ca*. 305, 610 and 915 m, respectively) from the boundary of each polygon. The 1,000 foot distance was chosen because it is the standard that CARB generally applies in its community health risk assessments and is specified in its land use manual [25]; we also included hazards within two other bands (1,000–2,000 feet and 2,000–3,000 feet) because there is some degree of locational inaccuracy in the GIS data making strict buffering problematic, and some features (e.g., geocoded stationary hazards) may be spatially represented as point features just outside a buffer but, in reality, are polygons that stretch across buffers.

The number and type of sources within each of these buffer distances was determined for every CI polygon; a similar procedure is done for all hazards represented as area features (e.g., airports, refineries, railroad tracks). We then utilized a distance-weighted scoring procedure where the influence of the hazards on the sum attached to the CI polygon diminishes with distance (Figure 2) as those places with proximity to numerous air quality hazards are assumed to be more highly impacted. We applied this tiered buffering approach rather than a continuous distance-weighting method to ensure that the hazard and land use scoring was transparent to community stakeholders. Using this method, the summed point totals for each CI Polygon in the Southern California area we examined ranges from 0 to 9.8.

Figure 2. Method for assessing hazard proximity for CI polygons.



We then added to the distance- weighted hazard proximity counts a binary dummy variable indicating whether the CI Polygon was residential land (0) or a non-residential sensitive land use. A tract-level hazard proximity score is then calculated based on the hazard proximity and sensitive land use measure by attaching to each CI polygon a population weight derived from assigning population using the underlying intersection of census block data and polygon land area; we then used that value

to weight the scores to a census tract average score for hazard proximity/sensitive land use. The downside of this strategy is that it can underweight the hazard proximity measure if a block that is attached to a particular polygon has either no residents or a low population (for example if part of the block is a school). An alternative approach involves area weighting; however, this approach can overweight larger CI polygons which may have few residents. As the results were generally similar and our focus was on community impacts, we conducted population-weighting.

Finally, a quintile ranking from 1 (low) to 5 (high) was applied to derive a tract-level score which integrates the presence of both sensitive and hazardous land uses. More complex ranking strategies were available, including the utilization of Jenks' natural breaks for these figures or the determination of a mean and standard deviation, with four breaks determined as being more than one standard deviation above (or below) the mean or between one standard deviation and the mean. However, quintile ranking yielded results similar to the more complex approaches and were more transparent to community stakeholders; this was also the case for the other variables discussed below.

2.2.2. Health Risk and Exposure Indicators

This category includes five metrics of air pollution concentration estimates or health risk estimates associated with modeled air toxics exposures, all calculated at the census tract level. They include toxicity weighted hazard scores for air pollutant emissions from the 2005 Toxic Release Inventory facilities included in the U.S. EPA's Risk Screening Environmental Indicators, estimated at the census tract level using a Gaussian-plume fate-and-transport model (RSEI-Geographic Microdata database) [32,33]; the CARB cumulative estimated lifetime cancer risk associated with ambient air toxics exposures from mobile and stationary sources for 2001 [34,35]; tract-level estimates of cumulative respiratory hazard derived from the 1999 National Air Toxics Assessment (NATA) [36]; tract-level ambient concentration estimates interpolated from the CARB statewide criteria air pollutant monitoring network for $PM_{2.5}$ and ozone concentration estimates and averaged for 2004–2006 [34].

Intermediate scores for each health risk and exposure metric were calculated based on quintile distribution rankings (with scores ranging from 1–5) for all tracts in the study area. As these health risk and exposure metrics are at the tract level, each CI polygon receives the metric score for its host census tract and the ranking is done at the tract level. For example, a CI polygon located in a tract that ranks in the least impacted 20% for each of the five exposure and health risk metrics ($PM_{2.5}$ concentration, ozone concentration, estimated cumulative cancer risk for air toxics, estimated respiratory hazard for air toxics, and toxicity-weighted pollutant emissions from RSEI) would receive a total health risk and exposure score of 5 (5 metric scores of 1), whereas a tract that ranked in the highest quintile for all five metrics would have a total exposure and health risk score of 25 (5 metric scores of 5). These total intermediate scores are then re-ranked into quintiles by tract to derive the final score for this air pollution exposure/health risk category, which ranges from 1 to 5.

2.2.3. Social and Health Vulnerability Indicators

This category of indicators includes tract level metrics identified by the social epidemiology and environmental justice research literature as important factors for adverse health outcomes and statistically significant determinants of patterns of disparate impact. Variables from the 2000 U.S.

Census [37] include measures of race/ethnicity (% residents of color), poverty (% residents living below twice national poverty level), wealth (% home ownership using % living in rented households), educational attainment (% population over age 24 with less than high school education), age (% under 5 years old and % over 60 years old), and linguistic isolation (% residents above the age of 4 in households where no one over age 15 speaks English well). Non-census metrics include % voter turnout (% votes cast among all registered voters in the 2000 general election) [38] as a proxy for degree of engagement in local decision-making (which has been linked to community health status [39]), and adverse birth outcomes (% preterm or small for gestational age infants 1996–03) both of which are sensitive health endpoints that reflect underlying community health status (California Automated Vital Statistics System, 2006, unpublished data).

Intermediate social and health vulnerability indicator scores were calculated using the same quintile distribution and normalization technique employed for the health risk and exposure indicators, above, with scores ranging from 1 to 5. To ensure that social and health vulnerability scores were not distorted by missing data or based upon anomalously small populations, tracts with fewer than 50 people and those with fewer than six indicator values were not scored (n = 34 out of 3,381 tracts or about 1% of census tracts). Some of these tracts had already been eliminated in the hazard proximity scoring phase owing to having no residential land. To insure comparability between tracts with all metrics and those tracts missing 1 to 4 metrics, we summarized the ranks in the individual metrics but then calculated a score based on dividing that sum by the number of non-missing metrics.

3. Results and Discussion

Mapping the intermediate EJSM scores for the three indicator categories at the census tract level reveals some interesting geographic patterns. The maps shown below cover only the South Coast Air Quality Management District (SCAQMD) portion of the Southern California region studied, as most of the variation in scores is represented in this area. Areas with high hazard proximity and sensitive land use scores (Figure 3) tend to correspond with the more densely populated areas, and either tend to cluster around major industrial centers or follow major transportation corridors. High scores are typical in areas with populations characterized by high minority, low income populations, and adjacent to sectors of concentrated industrial activity (shown in dark gray), such as the Ports of Los Angeles/Long Beach, the Los Angeles International Airport, and the industrial core of Los Angeles running from the ports to downtown L.A.

The geographic distribution of the Health Risk and Exposure scores (Figure 4) is less complex, but with a clear concentric pattern with little fine-scale variation with broad areas with a single score. Areas with the highest scores surround heavily industrialized areas, including central and East Los Angeles, the Alameda corridor connecting downtown to the ports along the 710 transportation (truck, rail, freeway) corridor, and the industrial centers in Baldwin Park and east of Ontario International Airport. Coastal and foothill neighborhoods are characterized by low scores, and the apparent effects of the freeway system on the overall pattern are minor. This pattern is similar to the results of the MATES III (Multiple Air Toxics Exposure Study) project which evaluated and mapped health risks associated with air toxics and diesel particulates using the SCAQMD emissions inventory and monitoring programs [40] even though the MATES analysis is done at a much coarser level of spatial

resolution, and includes mapping across all land use types. This suggests that this metric category of the EJSM is consistent with other screening approaches; the innovation here is combining this with other dimensions as well as the adoption of a more transparent and community-engaged approach to developing the EJSM.

Figure 3. Hazard proximity and sensitive land use quintile scores at the tract level (mapped on CI polygons)—South Coast Air Quality Management District (SCAQMD), California.

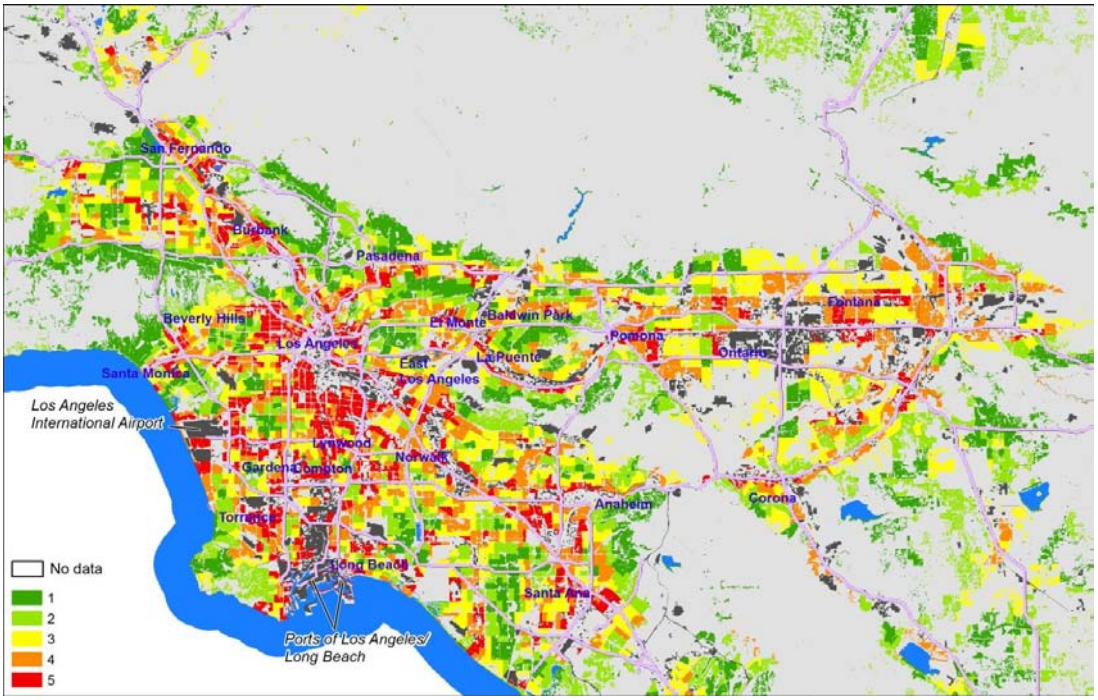
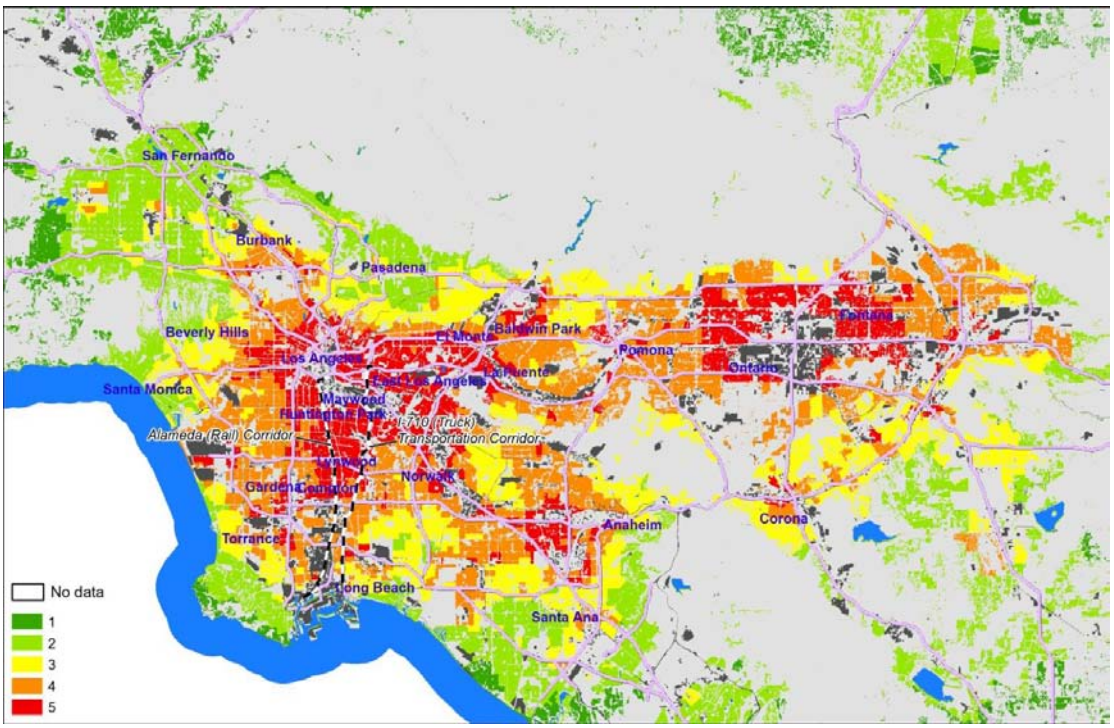
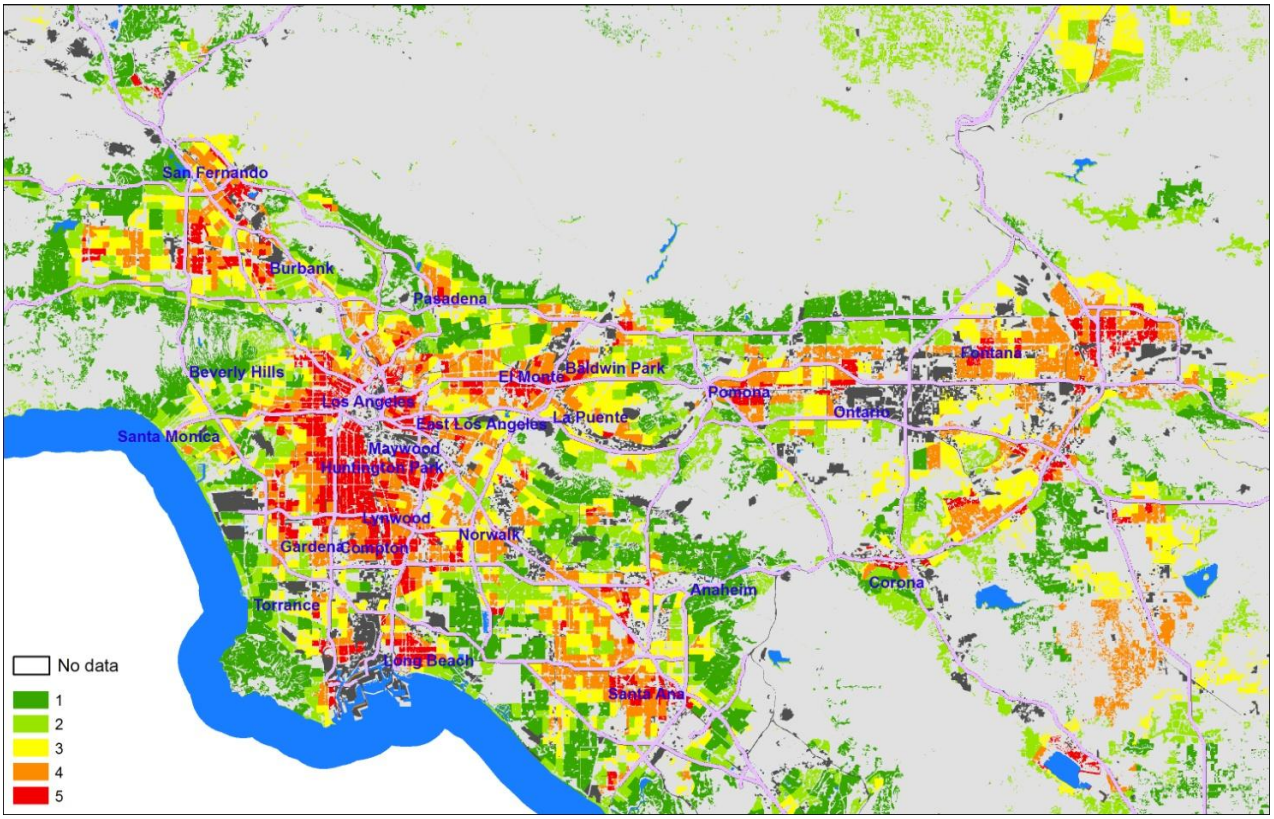


Figure 4. Air pollution exposure and health risk quintile scores at the tract level (mapped on CI polygons)—SCAQMD.



Social and Health Vulnerability scores (Figure 5) reflect the well documented pattern of residential segregation in metropolitan Los Angeles by SES variables of race and class. Many of the same neighborhoods bearing the burden of high exposure to air pollution and its attendant health risks are also those where the most vulnerable populations are also concentrated.]

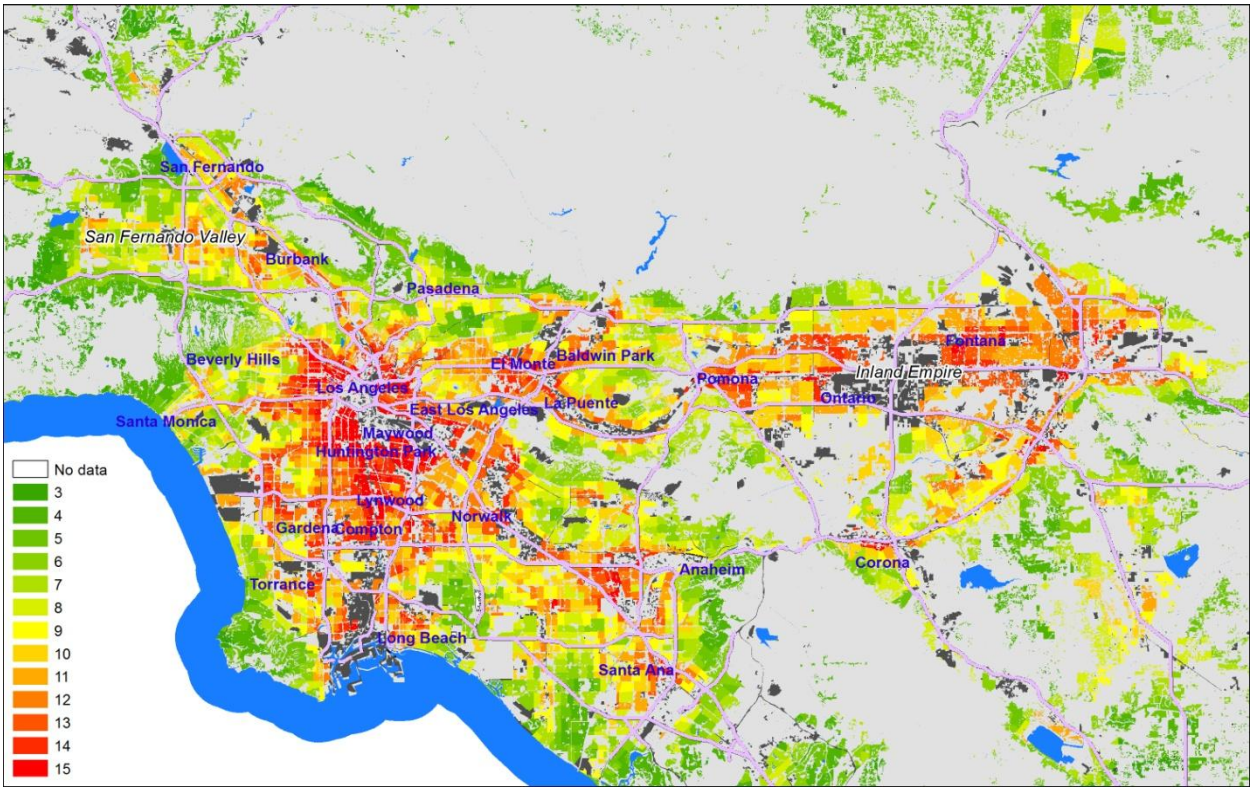
Figure 5. Social and health vulnerability quintile scores at the tract level (mapped on CI polygons)—SCAQMD.



The three intermediate category scores are summed into a Total Cumulative Impacts (CI) Score that ranges from 3–15 (Figure 6). For visual representation, these scores are attached in the GIS system to each CI polygon (since that focuses attention on the residential and sensitive land use areas) but they are based on tract-level scores. It is worth noting that the regional distribution of Total CI Scores is near normal.

Certain areas, like communities near the ports and airports as well as the heavily impacted Pacoima neighborhood in the San Fernando Valley have the highest CI scores (shown in red). Community activism around environmental justice has occurred in these areas and they are often receiving targeted attention from regulators and policy makers. What is perhaps more useful is that the CI map also points to communities that do not have a record of organizing and have not brought themselves to the attention of regulators or decision-makers, such as East Los Angeles (which is intersected with freeways and populated with smaller hazard), Pomona east of Los Angeles, and parts of the Inland Valley (Riverside and San Bernardino Counties). From the view of regulators, the map helps direct attention to places where specific attention may be needed to address environmental health concerns not usually considered; from the point of view of community stakeholders, the map highlights locations where residents may need to be educated and engaged to address environmental hazards.

Figure 6. Total cumulative impact quintile scores at the tract level (mapped on CI polygons)—SCAQMD.



A number of science-policy choices must be made during the development of any screening method and the EJSM is no exception. For example, we chose to include hazard proximity (and sensitive land use designation) as well as air quality and health risk measures. While it can be argued that the health risk measures are most important and that including a category for hazard proximity is duplicative, we believe that CI screening should include metrics that are also meaningful for land-use and planning contexts to better account for the larger impact of place on community health. Indeed, studies indicate that communities living near industrial and hazardous waste sites experience an increased risk of psychosocial stress and mental health impacts in addition to other health outcomes [41,42]. Therefore, in order to be accessible to a variety of community, agency and other regulatory stakeholders, we chose not to limit the EJSM to quantitative risk estimates of potential health impacts.

We also did not to attach explicit weights to any of the three metric categories or to any of the specific metrics within each category (e.g., rankings for the cumulative estimated lifetime cancer risk associated with ambient air toxics and ranking for the tract-level ambient $PM_{2.5}$ concentration estimates both have the same weight within our category of air pollution-related estimated health risk). Our decision was based on the fact that there is a paucity of scientific evidence that provides specific guidance for a particular weighting scheme and it was also guided by community stakeholder feedback expressing worries about arbitrary weights. We note, however, that the EJSM has been developed with enough flexibility to allow for weighting of metrics if a specific decision-making context warrants such an approach. Weights could be assigned directly to metric scores, or the range of scores for specific metric categories could differ based on determinations of the strength of the data available.

This latter approach is one that is currently being considered by California's Office of Environmental Health Hazard Assessment [43].

Similarly, our use of quintiles as the basis to score metrics and to derive a single CI score was driven at least partly by our desire to have our method be more transparent and accessible to diverse audiences. As noted earlier, alternative approaches could use means and standard deviations to capture outlier CI tracts; however, since the health risk metrics are not normally distributed, this requires taking the mean and standard deviations of a logged measure. Since the relative ranking of tracts is not changed significantly by this more complicated procedure compared to quintile-based scoring, we chose the approach that is more accessible and more easily understood by the public. This is particularly important in policy areas like environmental justice where a pattern of distrust between agencies and community stakeholders might argue that simple and straightforward is best, at least in the initial phases of developing screening approaches.

We also note that the hazard proximity and land use dimension could be evaluated using different distance buffers than the ones we applied. We made use of CARB-specified land use buffers [25] but expanded the distance with multiple buffers and distance-weighting to account for potential locational inaccuracies of point and area emission sources. We also chose to summarize hazard proximity/land use scores to the tract level to harmonize the data from this category with the tract-level data from the air pollution exposure/health risk and social/health vulnerability categories. An alternative approach would have been to attach to each hazard proximity/land use polygon the tract-level exposure/health risk and social vulnerability scores. However, as we have suggested, this approach misrepresents the geographic accuracy of the health risk/exposure and social/health vulnerability metrics, all of which are calculated at the tract level. The tract level approach likely has the effect of lowering scores for those CI Polygons that are within the high range of the distribution because of the averaging at the tract level, possibly under-representing cumulative impacts for some neighborhoods.

4. Conclusions

The EJSM was developed as an approach for assessing patterns of cumulative impacts from environmental and social stressors across neighborhoods within regions, using Southern California as a case study. Relying on secondary data sources, the EJSM integrates and scores multiple metrics of environmental and social stressors to rank census tracts in a way that is rigorous yet transparent to diverse stakeholders, particularly regulators, policymakers and communities.

In part because we consider hazard proximity and land use to be an essential component of cumulative impact screening, we constructed the EJSM by intersecting a land use spatial layer with census block geography. This creates the distinct advantage of targeting CI screening in areas where people live or where there are sensitive receptors. However, this approach also poses one disadvantage, in that it relies on reasonably precise and well-classified land use data. This information is not uniformly available in all regions of California or elsewhere in the country.

Our future work will examine whether land use data with lower spatial resolution or different types of classification, such as automated classification of aerial photo and satellite imagery or land parcel data, might be utilized and how that would affect the accuracy of screening results. As the quality and

availability of land use data continues to improve, we believe that this challenge is not likely to be a serious long-term liability for cumulative impacts screening methods such as the EJSM.

Of course, any screening method that assesses and compares cumulative impacts across diverse locations must be followed with further validation efforts to assess the accuracy of the data as well as the predictive value of the approach. Such validation work will require ground-truthing efforts to verify the locational accuracy in data sets and more refined air monitoring to assess whether and how interpolated exposure estimates are under- or over-predicting measured values in certain locations. Although discussion of this work is beyond the purview of this paper, we have begun to conduct such ground-truthing work in the Los Angeles area [44]. Finally, although the EJSM is flexible enough to allow for comparisons across different study areas (e.g., within regions or across the state) we have emphasized a regional application because generally land use planning, industrial and transportation development, and environmental regulation are regionally rooted and require regionally specific interventions to reduce hazard exposures or to address social and health vulnerability factors.

Despite these limitations, screening methods such as the EJSM can help regulators and policy makers more efficiently target their efforts to remediate cumulative impacts, environmental inequities, and focus regulatory action at the neighborhood level. Currently, the burden of proof is placed on communities to demonstrate the cumulative impacts of environmental and social stressors and push for action. CI screening such as the EJSM provides environmental policy and programs with a more proactive approach that removes this burden from vulnerable communities so that those without an active environmental justice movement or capacity for civic engagement can also receive regulatory attention and protection.

Moreover, the EJSM can advance regulatory decision-making and the implementation of environmental policies. In California, for example, recent climate change legislation, known as the Global Warming Solutions Act [45] mandates statewide goals to reduce greenhouse gas emissions and also requires consideration of how the law's implementation will impact "communities that are already adversely affected by air pollution." Moreover, the law requires that measures to reduce greenhouse gas emissions must be designed to "direct public and private investment toward the most disadvantaged communities in California and provide an opportunity for small businesses, schools, affordable housing associations, and other community institutions to participate in and benefit from statewide efforts to reduce greenhouse gas emissions." As a result of this legislative mandate, CARB is developing its own EJ Screening approach, partly based on the EJSM, in order to comply with the law [46].

One key element of CI screening is the importance of soliciting stakeholder feedback on method development, metric choices and scoring approaches as these evolve. In addition to having extensive peer review by regulatory scientists and academic researchers, the EJSM was previewed multiple times by community stakeholders, including in early scoping sessions to solicit input on potential metrics. We also conducted some local "ground-truthing" exercises to test or verify the locational accuracy of secondary datasets [44,47].

Other regulatory agencies are currently grappling with the development of CI screening tools to inform decision-making in their regulatory programs. As noted earlier, US EPA has been developing an Environmental Justice Strategic Enforcement Screening Tool (EJSEAT) to identify communities experiencing disproportionate environmental and public health burdens for the purposes of enhancing

enforcement and compliance activities [48]. Similarly, California's Office of Environmental Health Hazard Assessment is also developing guidelines for cumulative impacts analysis to inform regulatory programs and enforcement activities within Cal-EPA [43]. The field of CI screening is likely to expand as land use and other data sources improve, and these efforts, if implemented, could be very helpful to identifying vulnerable communities and improving environmental health.

Acknowledgements

Support for this research was provided by the California Air Resources Board (# 04-308), the California Environmental Protection Agency (#07-020), and US EPA Applied Research Effort (RARE) (#: X3-83338901-1). We thank scientists from these agencies and the Project Peer Review Committee for their advice on this research and the valuable feedback from community residents and environmental justice activists, particularly the staff of Communities for a Better Environment. The authors declare no competing financial interests.

References

1. *Toward Environmental Justice: Research, Education, and Health Policy Needs*; Committee on Environmental Justice, Health Sciences Policy Program, Health Sciences Section, Institute of Medicine: Washington, DC, USA, 1999.
2. *Clearing the Air: Asthma and Indoor Air Exposures*; Division of Health Promotion and Disease Prevention, Institute of Medicine: Washington, DC, USA, 2000.
3. Brunekreef, B.; Holgate, S.T. Air pollution and health. *Lancet* **2002**, *360*, 1233-1242.
4. Brody, J.; Morello-Frosch, R.; Brown, P.; Zota, A.; Pérez, C.; Rudel, R. Linking exposure assessment science with policy objectives for environmental justice and breast cancer advocacy: The Northern California household exposure study. *Amer. J. Public Health* **2009**, *99*, S600-S609.
5. Pulido, L. A critical review of the methodology of environmental racism research. *Antipode* **1996**, *28*, 142-159.
6. Morello-Frosch, R.; Pastor, M.; Sadd, J. Environmental justice and Southern California's "Riskscape": The distribution of air toxics exposures and health risks among diverse communities. *Urban Aff. Rev.* **2001**, *36*, 551-578.
7. Pastor, M.; Sadd, J.; Hipp, J. Which came first? Toxic facilities, minority move-in, and environmental justice. *J. Urban Aff.* **2001**, *23*, 1-21.
8. Morello-Frosch, R.; Pastor, M., Jr.; Porras, C.; Sadd, J. Environmental justice and regional inequality in southern California: Implications for future research. *Environ. Health Perspect.* **2002**, *110*, 149-154.
9. Pastor, M.; Sadd, J.; Morello-Frosch, R. Waiting to inhale: The demographics of toxic air releases in 21st century California. *Soc. Sci. Quart.* **2004**, *85*, 420-440.
10. O'Neill, M.S.; Jerrett, M.; Kawachi, I.; Levy, J.I.; Cohen, A.J.; Gouveia, N.; Wilkinson, P.; Fletcher, T.; Cifuentes, L.; Schwartz, J. Health, wealth, and air pollution: advancing theory and methods. *Environ. Health Perspect.* **2003**, *111*, 1861-1870.
11. Gee, G.C.; Payne-Sturges, D.C. Environmental health disparities: A framework integrating psychosocial and environmental concepts. *Environ. Health Perspect.* **2004**, *112*, 1645-1653.

12. Morello-Frosch, R.; Shenassa, E. The environmental 'Riskscape' and social inequality: Implications for explaining maternal and child health disparities. *Environ. Health Perspect.* **2006**, *114*, 1150-1153.
13. Cal-EPA Advisory Committee on Environmental Justice. *Recommendations of the California Environmental Protection Agency (Cal/EPA) Advisory Committee on Environmental Justice to the Cal/EPA Interagency Working Group on Environmental Justice*, *Final Report*; California Environmental Protection Agency: Sacramento, CA, USA, 30 September 2003.
14. National Environmental Justice Advisory Council. *Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts—Draft Report*; National Environmental Justice Advisory Council, Cumulative Risks/Impacts Work Group: New Orleans, LA, USA, 2004; p. 80.
15. Clougherty, J.E.; Levy, J.I.; Kubzansky, L.D.; Ryan, P.B.; Suglia, S.F.; Canner, M.J.; Wright, R.J. Synergistic effects of traffic-related air pollution and exposure to violence on urban asthma etiology. *Environ. Health Perspect.* **2007**, *115*, 1140-1146.
16. Clougherty, J.; Kubzansky, L. A framework for examining social stress and susceptibility in air pollution and respiratory health. *Environ. Health Perspect.* **2009**, *117*, 1351-1358.
17. DeFur, P.L.; Evans, G.W.; Cohen Hubal, E.A.; Kyle, A.D.; Morello-Frosch, R.A.; Williams, D.R. Vulnerability as a function of individual and group resources in cumulative risk assessment. *Environ. Health Perspect.* **2007**, *115*, 817-824.
18. The National Academy of Sciences (NAS). Implementing Cumulative Risk Assessment. In *Science and Decisions: Advancing Risk Assessment*; The National Academies Press: Atlanta, GA, USA, 2009; pp. 213-239.
19. *Cumulative Impacts and Precautionary Approaches Project*; Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency: Oakland, CA, USA, 2009. Available online: http://oehha.ca.gov/Listservs/ListSubscribe.asp?LID=79 (accessed on 5 February 2011).
20. Su, J.G.; Morello-Frosch, R.; Jesdale, B.M.; Kyle, A.D.; Shamasunder, B.; Jerrett, M. An index for assessing demographic inequalities in cumulative environmental hazards with application to Los Angeles, California. *Environ. Sci. Technol.* **2009**, *43*, 7626-7634.
21. Pastor, M.; Dreir, P.; Grigsby, J.; Lopez-Garza, M. *Regions that Work: How Cities and Suburbs Can Grow Together*; University of Minnesota Press: Minnesota, MN, USA, 2000.
22. Morello-Frosch, R. The political economy of environmental discrimination. *Environ. Plan. C-Gov. Policy* **2002**, *20*, 477-496.
23. US EPA. *Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT)*. Available online: http://www.epa.gov/environmentaljustice/resources/policy/ej-seat.html (accessed on 23 October 2010).
24. National Environmental Justice Advisory Council. *Nationally Consistent Environmental Justice Screening Approaches*; National Environmental Justice Advisory Council: Washington, DC, USA, 2010.
25. *Air Quality and Land Use Handbook: A Community Health Perspective*; California Air Resources Board (CARB): Sacramento, CA, USA, 2005. Available online: http://www.arb.ca.gov/ch/handbook.pdf (accessed on 29 July 2006).

26. Cal-EPA. *Cumulative Impacts: Building a Scientific Foundation—Public Review Draft*. Available online: http://www.oehha.ca.gov/ej/pdf/081910cidraftreport.pdf (accessed on 26 September 2010).
27. Olshan, A.F.; Anderson, L.; Roman, E.; Fear, N.; Wolff, M.; Whyatt, R.; Vu, V.; Diwan, B.A.; Potischman, N. Workshop to identify critical windows of exposure for children's health: Cancer work group summary. *Environ. Health Perspect.* **2000**, *108*, 595-597.
28. *Land Use Spatial Data Layer for the Southern California Aerial Land Use Consortium*; Southern California Association of Governments (SCAG): Los Angeles, CA, USA, 2005. Available online: http://www.scag.ca.gov/mappingGIS.htm (accessed on 19 May 2006).
29. *Community Health Air Pollution Information System (CHAPIS)*; California Air Resources Board (CARB), California Environmental Protection Agency: Sacramento, CA, USA, 2001. Available online http://www.arb.ca.gov/ch/chapis1/chapis1.htm (accessed on 20 March 2005).
30. *California Air Toxics Program*; California Air Resources Board (CARB), California Environmental Protection Agency: Sacramento, CA, USA, 2001. Available online: http://www.arb.ca.gov/toxics/chrome/chrome.htm (accessed on 13 March 2005).
31. *Envirostor*; Department of Toxic Substances Control (DTSC): Sacramento, CA, USA, 2006. Available online: http://www.envirostor.dtsc.ca.gov/public/data_download.asp (accessed on 15 April 2005).
32. *Risk Screening Environmental Indicators (RSEI)*; US Environmental Protection Agency: Washington, DC, USA, 2010. Available online: http://www.epa.gov/opptintr/rsei/ (accessed on 15 February 2005).
33. Ash, M.; Boyce, J.K. Measuring Corporate Environmental Justice Performance. In *Corporate Social Responsibility and Environmental Management*; John Wiley & Sons, Ltd. and ERP Environment: Hoboken, NJ, USA, 2010; Volume 18, pp. 61-79.
34. *California Air Quality Data Available on DVD-ROM*; California Air Resources Board (CARB): Sacramento, CA, USA, 2007. Available online: http://www.arb.ca.gov/aqd/aqdcd/aqdcddld.htm (accessed on 9 July 2008).
35. California Air Resources Board (CARB). *Overview of the Air Toxics "Hot Spots" Information and Assessment Act*; Available online: http://www.arb.ca.gov/ab2588/overview.htm (accessed on 20 March 2005).
36. US EPA. *National Air Toxics Assessments*; Available online: http://www.epa.gov/ttn/atw/natamain/ (accessed on 15 June 2005).
37. *Census of Population and Housing, 2000 [United States]: Census Tract Relationship Files (CTRF)*; US Department of Commerce, Bureau of the Census: Ann Arbor, MI, USA, 2001.
38. California Secretary of State. Unpublished data available at UC Berkeley Statewide Database. Available online: http://swdb.berkeley.edu/d00/g00.html (accessed on 1 July 2007).
39. LaVeist, T.A. The political empowerment and health status of African-Americans: Mapping a new territory. *Amer. J. Sociol.* **1992**, *97*, 1080-1095.
40. SCAQMD. *Multiple Air Toxics Exposure Study (MATES III) in the South Coast Air Basin Final Report 2008*; Available online: http://www.aqmd.gov/prdas/matesIII/MATESIII FinalReportSept2008.html (accessed on 10 September 2009).
41. Downey, L.; Willigen, M. Environmental stressors: The mental health impacts of living near industrial activity. *J. Health Soc. Behav.* **2005**, *46*, 289-305.

42. Vrijheid, M. Health effects of residence near hazardous waste landfill sites: A review of epidemiologic literature. *Environ. Health Perspect.* **2000**, *108*, 101-112.
43. Cal-EPA. *Cumulative Impacts: Building a Scientific Foundation—Public Review Draft*; Available online: http://www.oehha.ca.gov/ej/pdf/081910cidraftreport.pdf (accessed on 21 October 2010).
44. *Los Angeles Collaborative for Environmental Health and Justice. Hidden Hazards*; Liberty Hill Foundation: Los Angeles CA, USA, 2010. Available online: http://libertyhill.typepad.com/main/2011/01/la-poised-to-deal-with-hidden-hazards.html (accessed on 15 February 2011).
45. *Assembly Bill No. 32: California Global Warming Solutions Act of 2006*; Available online: www.climatechange.ca.gov/.../ab_32_bill_20060927_chaptered.pdf (accessed on 20 February 2011).
46. California Air Resources Board (CARB). *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for AB 32 Assessments*. Available online: www.arb.ca.gov/cc/ab32publichealth/communitymethod.pdf (accessed on 25 June 2010).
47. Communities for a Better Environment. *Cumulative Impacts in East Oakland: Findings from a Community-Based Mapping Study*; Communities for a Better Environment: Oakland, CA, USA, 2008.
48. US EPA. *Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT)*. Available online: http://www.epa.gov/environmentaljustice/resources/policy/ej-seat.html (accessed on 3 April 2011).