

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT



# Final Socioeconomic Report Comments and Responses to Comments 2016 AIR QUALITY MANAGEMENT PLAN



March 2017

# **FINAL SOCIOECONOMIC REPORT**

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## **COMMENTS AND RESPONSES TO COMMENTS ON THE SOCIOECONOMIC REPORT**

**MARCH 2017**

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COMMENT LETTER #1 – INLAND EMPIRE ECONOMIC PARTNERSHIP (IEEP), DECEMBER 8, 2015

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**From:** Erdal Tekin <tekin@american.edu>  
**Sent:** Wednesday, December 9, 2015 5:05 AM  
**To:** Elaine Shen  
**Subject:** Fwd: AQMD research on Unemployment

Sent from Erdal's iPhone

Begin forwarded message:

**From:** "John Husing" <[john@johnhusing.com](mailto:john@johnhusing.com)>  
**Date:** December 8, 2015 at 11:27:44 PM EST  
**To:** [tekin@american.edu](mailto:tekin@american.edu), "[SupervisorRutherford@sbcounty.gov](mailto:SupervisorRutherford@sbcounty.gov)" <[SupervisorRutherford@sbCounty.gov](mailto:SupervisorRutherford@sbCounty.gov)>, "[McCallon, Larry](mailto:McCallon@cityofhighland.org)" <[lmccallon@cityofhighland.org](mailto:lmccallon@cityofhighland.org)>, [bbenoit@cityofwildomar.org](mailto:bbenoit@cityofwildomar.org), [JJBenoit@mbos.org](mailto:JJBenoit@mbos.org)  
**Subject:** AQMD research on Unemployment

Sir:

1-1 I have just reviewed your paper prepared for the South Coast Air Quality Management District's staff which appears to attempt to justify their belief that somehow their work does not negatively impact public health through its impact on the economy. The choice of the periodic short term fluctuations in unemployment as the appropriate variable to study looks suspiciously like a less than serious way of looking at the issue about which those of us concerned with the unintended consequences of the agency's policies have raised. To be specific, the issue is not a periodic difficulty of seeing the economy fluctuate in the short term as a result of the business cycle but rather the long term consequences of their cumulative policies that are inhibiting the ability of marginally educated workers to migrate out of poverty by suppressing growth of sectors like logistics, manufacturing, construction, oil and gas with median incomes in the \$45,000 to \$55,000 range. While you correctly identify that unemployment negatively affects individuals, the fact you have seemed to find that a slowing economy in the aggregate leads to cleaner air and less income for individuals to engage in nefarious activities like smoking, drinking or drug use would appear to contribute nothing to our understanding of the deeper poverty issue facing areas like the Inland Empire where the cumulative effect of the agency's short-circuiting of job growth in sector's allowing people to leave poverty behind is the true concern. As a serious researcher, I hope that you will not allow yourself to have your work become used in the agency's propaganda to show that it has clean hands on the deeper issues that you were apparently not tasked with studying. The agency is notorious for taking the study of one thing and using it to push aside true issues they are unwilling to face.

1-2

**COMMENT LETTER #1 – IEEP EMAIL (CONT'D)**

**1-2  
(CONT'D)**

I have cc'd the four members of the AQMD board on this email, because those of us concerned with the agency's nefarious use of research want to make sure they are aware of what you were asked to study and not asked to study.

John Husing, Ph.D.  
Chief Economist  
Inland Empire Economic Partnership

## Responses to Comment Letter #1

Submitted by Inland Empire Economic Partnership on December 8, 2015

### 1-1

The comment letter contains claims and opinions without supporting evidence. Socioeconomic analyses performed by SCAQMD staff use the best available data and state-of-science methodologies that are based on recommendations by the SCAQMD's expert consultants and scientific advisors. Moreover, information and assumptions used in the Draft Final Socioeconomic Report, including data, methodology, and analytical results, were discussed at nine Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group meetings between October 2014 and November 2016, four AQMP Advisory Group meetings in 2015 and 2016, three AQMP Socioeconomic Assessment EJ Working Group meetings in 2016, eight regional public workshops and hearings in 2016, and additional presentations to various stakeholders. Public meeting notices were sent to all advisory and working group members, as well as all AQMP interested parties.

The Commenter incorrectly claimed that Dr. Erdal Tekin's report was SCAQMD staff's "attempt to justify [staff's] belief that somehow [the SCAQMD's] work does not negatively impact public health through its impact on the economy." Contrary to this claim, the SCAQMD, in response to requests by stakeholders from the business community, commissioned Dr. Tekin—Professor of Public Policy at the American University, research associate at the National Bureau of Economic Research (NBER) and research fellow at the Institute for the Study of Labor (IZA)—to independently conduct a literature review of the relationship between health and unemployment and to examine the health effects of unemployment in the four-county region. Dr. Erdal Tekin's report, entitled "Employment and Health," is available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth\\_dec2015\\_012616.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth_dec2015_012616.pdf).

Furthermore, staff's modeling results of regional macroeconomic impacts due to implementation of the Draft Final 2016 AQMP does not corroborate the Commenter's claim. As shown in Chapter 4 of the Draft Final Socioeconomic Report and summarized in its Executive Summary, the projected jobs impact under each of the four impact scenarios analyzed in the report ranges from an average of 9,000 jobs foregone per year to an average of 29,000 jobs gained per year from 2017 to 2031. These are very small job impacts percentage-wise relative to a baseline regional economy of over 10 million jobs (including both payroll jobs and self-employment). Moreover, it was also shown that, under all four impact scenarios, the projected job impact does not alter the region's long-term job growth in any significant way. Similarly, Figure 1-1 of the Draft Final Socioeconomic Report demonstrates no discernible correlation between cleaner air and the macroeconomic indicators in the four-county region of Los Angeles, Orange, Riverside and San Bernardino. Observed fluctuations in the region's GDP and total employment clearly correspond to business cycles, while the regional economy and population appear to grow hand-in-hand with improved air quality.

Chapter 4 of the Draft Final Socioeconomic Report also includes a preliminary discussion on the health effects of unemployment, whether related to air quality regulations or not. Recent economics literature has shown that job displacement, particularly due to plant closings and layoffs, could lead to adverse

health effects on the individuals who experience job losses. In the meantime, as reviewed in Dr. Tekin's report, a journal article published in 2000 by economist Christopher Rhum and a series of follow-up academic studies have all reported the finding that, as headline unemployment rates went up, public health outcomes improved (usually measured by mortality rate). The finding might be counter-intuitive but the same finding was also shown in Dr. Tekin's analysis of the health effects of unemployment in the four-county region; specifically, adverse health effects were generally observed among individuals who recently became unemployed, but the overall mortality risk as a public health indicator decreased when unemployment rate in the local economy rose. It was hypothesized in various related studies that reduced air pollution due to less travel and less industrial activities during economic downturns could be one factor, and the more abundant supply of skilled labor in the healthcare industry, such as in nursing homes, could also reduce mortality incidence among the physically more fragile population.

Regardless, several economists on the U.S. EPA's Science Advisory Board – Economy-Wide Modeling Panel did not support the inclusion of health effects of unemployment and other second-order effects when conducting macroeconomic impact modeling or cost-benefit analysis of environmental policies and regulations. As documented in the October 2015 meeting minutes, the panel economists cited reasons including the current lack of sufficient empirical evidence, the difficulty to establish causality, and the anticipated small magnitude of such effects. Additionally, there is also a lack of scientific evidence indicating any linkage between environmental regulations and poverty.

With respect to the Commenter's claim that periodic short term fluctuations in unemployment were an inappropriate variable to study, Dr. Tekin's econometric analysis based on variations of monthly unemployment rate is a standard and well established technique to tease out the relationship between health outcomes and economic conditions. Similar practices can be found in many of the scientific papers reviewed in Dr. Tekin's report.

It should be emphasized that staff recognizes that the macroeconomic impact analysis may not reflect potential impacts at the individual facility level. During rule development process, staff continues to be sensitive to any potential effect on plant-level operations and employment while taking necessary steps to protect public health from exposure to air pollutants. These commitments are manifested through the SCAQMD's efforts on many fronts, including public processes to solicit input and comments from all interested parties, continuous outreach to the general public and affected businesses, as well as performing a socioeconomic assessment which the Governing Board must consider for all emission reduction rules proposed for adoption or amendment.

## 1-2

The Commenter's attempts to denigrate the research, efforts, and integrity of Dr. Tekin and SCAQMD staff lack merit. As set forth above, Dr. Tekin is highly qualified and conducted his study and arrived at his conclusions independently. Staff has spent thousands of hours analyzing data, meeting with stakeholders, conferring with experts, drafting its analysis, and making voluminous amounts of information available to the public, including the Commenter. Compliance with the law, transparency, and integrity are demanded by SCAQMD.



COMMENT LETTER #2 – STAN YOUNG EMAIL #1, JANUARY 29, 2016

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**From:** Stan Young <stan.young@omicsoft.com>  
**Sent:** Friday, January 29, 2016 9:43 AM  
**To:** Elaine Shen  
**Cc:** James E. Enstrom  
**Subject:** Comment on recent Tekin report  
**Attachments:** Income and longevity.pdf

Dear Ms. Eshen:

2-1

I was sent a short quote from a recent Tekin report that was submitted to SCAQMD. The quote implies that income has little of know effect on health. Of course, that conclusion is absurd as income is a very important enabler of many aspects of being and staying healthy.

I attach a short note including two references and a pointer to a dramatic YouTube video.

2-2

Please acknowledge that you have received this note and if possible send me a pdf of the Tekin report. If you are interested I can send you pdfs of the two references I cite.

Stan Young

**ATTACHMENT TO COMMENT LETTER #2**  
**Young, Stan: January 29, 2016**

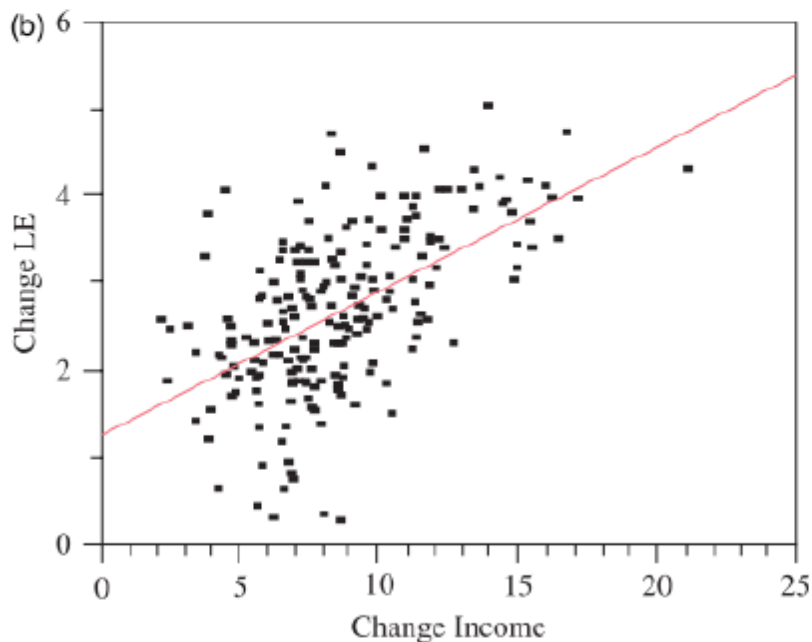
January 26, 2016 Tekin Report on Unemployment and Health for SCAQMD

“...mortality rate using data from the U.S. Vital Statistics. The results from this analysis reveal that mortality is procyclical in California and the SCAQMD counties, i.e., the **mortality rate increases as unemployment decreases**.

“Based on these findings, we conclude that fluctuations in the local unemployment rate are **unlikely to be associated** with health and health behaviors in any meaningful manner, at least for the state of California.

These statements are very counter intuitive and not supported by massive literature. Longevity increases with income. See the Hans Rosling youtube, <https://www.youtube.com/watch?v=ibkSRLYSojo>, which has been viewed over 7 million times.

In a publication by Young and Xia, 2013, Figure 6 (b), (Data from Pope et al. 2009) the relationship between income and longevity is dramatic and clear. As income increases, the x axis, longevity increases, the y-axis.



As income increases, Change Income, x-axis, longevity increases, Change LE, y-axis.

Pope III CA, Ezzati E, Dockery DW. (2009) Fine particulate air pollution and life expectancy in the United States. *NEJM* 360, 376–386.

Young SS, Xia JQ. (2013) Assessing geographic heterogeneity and variable importance in an air pollution data set. *Statistical analysis and data mining*. 6, 375-386.

## Responses to Comment Letter #2

Submitted by Stanley Young on January 29, 2016

### 2-1

Dr. Erdal Tekin's report referenced by the Commenter (available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth\\_dec2015\\_012616.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth_dec2015_012616.pdf)) does not claim or imply that "income has little of know effect on health.[sic]" It is instead a report on the relationship between unemployment and health. The report found that, while adverse health effects were generally observed among individuals who recently became unemployed, the overall mortality risk as a public health indicator decreased when unemployment rate in the local economy rose. (For the plausible explanations of this finding and further discussion, please see staff response to Comment 1-1.) Moreover, the two short quotes from Dr. Tekin's report referenced in the Commenter's note<sup>1</sup> were taken out of context. The quotes refer to the econometric test results, and the econometric test conducted in the report controlled for individuals' income level to remove the confounding effect of income on health outcomes.

### 2-2

Acknowledgement of receipt of this comment and a hyperlink to the referenced report were sent to the Commenter on January 29, 2016.

<sup>1</sup> "The results from this analysis reveal that mortality is procyclical in California and in the SCAQMD counties, i.e., the mortality rate increases as unemployment decreases."

"Based on these findings, we conclude that fluctuations in the local unemployment rate are unlikely to be associated with health and health behaviors in any meaningful manner, at least for the state of California"

COMMENT LETTER #3 – STAN YOUNG EMAIL #2, JANUARY 29, 2016

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**From:** Stan Young <stan.young@omicsoft.com>  
**Sent:** Friday, January 29, 2016 1:59 PM  
**To:** Elaine Shen  
**Cc:** James E. Enstrom  
**Subject:** Re: Comment on recent Tekin report

Elaine:

3-1

Dr Tekin cites Christopher Ruhm to the effect that when employment goes up mortality and other health problems increase. I think we can agree that this is surprising and counter intuitive. Taken to its logical conclusion the best policy would be for everyone to stop work. I'm eager to see how Dr. Tekin squares the circle. If you know the answer, please point me to it.

I'm looking through Ruhm's things now.

Stan

## Responses to Comment Letter #3

Submitted by Stanley Young on January 29, 2016

### 3-1

Staff provided the Commenter with a response via electronic mail on January 29, 2016 that “Dr. Tekin’s report discusses different possible mechanisms that may have contributed to the observed relationship reported in Ruhm (2000), among others.” Please also see staff response to Comment 1-1 where it is mentioned that Ruhm (2000)’s finding that mortality rate decreases as unemployment rate increases might be counter-intuitive but the finding was corroborated in a series of follow-up studies by various researchers.



**COMMENT LETTER #4—STAN YOUNG EMAIL, DECEMBER 24, 2015**

---

**From:** Stan Young [<mailto:stan.young@omicsoft.com>]  
**Sent:** Thursday, December 24, 2015 3:07 PM  
**To:** Henry Roman  
**Cc:** [George.Thurston@nyumc.org](mailto:George.Thurston@nyumc.org); James E. Enstrom  
**Subject:** Air quality and mortality in California

Dear Mr. Roman:

For several years I have been examining air quality, PM2.5 and ozone, and mortality in California. I have a data set that covers 2000-2012 and 8 air basins. After extensive analysis I find no association between either PM2.5 or ozone with acute mortality.

Enstrom (2005) finds no chronic association.

There is extensive literature on air quality and mortality for California that supports my findings. So far as I know the data set that I am using is the largest California data set extant.

You might take knowledge of my findings into account as you consider the situation in California.

Stan Young

4 -1

## COMMENT LETTER #4—ATTACHMENT A

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Short Bio 2015



Dr. S. Stanley Young is a retired researcher from Eli Lilly, GlaxoSmithKline and the National Institute of Statistical Sciences.

Dr. Young graduated from North Carolina State University, BS, MES and a PhD in Statistics and Genetics. He worked in the pharmaceutical industry on all phases of pre-clinical research. He has authored or co-authored over 60 papers including six “best paper” awards, and a highly cited book, *Resampling-Based Multiple Testing*. He has three issued patents. He is interested in all aspects of applied statistics, with special interest in chemical and biological informatics. He conducts research in the area of data mining.

Dr. Young is a Fellow of the American Statistical Association and the American Association for the Advancement of Science. He is an adjunct professor of statistics at North Carolina State University, the University of Waterloo and the University of British Columbia where he has co-directed thesis work.

## Response to Comment Letter #4

Submitted by Stanley Young on December 24, 2015

4-1

Staff appreciates the Commenter's sharing of his analysis findings with the SCAQMD expert consultant Industrial Economics, Inc. Please see staff response to Comment 12-1.

**COMMENT LETTER # 5—JOHN DUNN EMAIL, JANUARY 23, 2016**

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**From:** John Dunn [mailto:jddmdjd@web-access.net]  
**Sent:** Saturday, January 23, 2016 8:51 PM  
**To:** har@indecon.com; George.Thurston@nyumc.org  
**Cc:** robinson@hsph.harvard.edu; er@indecon.com  
**Subject:** South Coast Air Management proposals

Ladies and Gentlemen,

5 - 1

I object to your efforts to bolster the efforts of South Coast Air Management District to impose more air pollution regulations.

I attach here my objections to your your effort to support the CA South Coast 2016 air regs.

I hope you read the objections and you can respond to them or just, as Hillary or Leon or the bamster ordered—stand down, and withdraw the Thurston paper and any effort to cobble together science from the flawed Thurston report with the flawed wok of Michael Jarrett in support of ,pre small particle regulations on the theory it saves lives when you couldn't show me a life if your LIFE depended on it. I know you have already collected a lot of money for your efforts to makie the Thurston study into a silk purse, but ain't gonna happen, Thurston shows an overall small particle air pollution effect of ZERO. What you gonna do—change the rules?

I will provide the South Coast People with negative responses on their proposed small particle proposals, when necessary, and depending on what you do with the sorry hurston results.

5 - 2

I will provide equally negative scientific information on the South Coast ozone scare mongering when that becomes necessary, but I will relieve you of the responsibility for defending them on ozone, since your organization has nothing to do with ozone—you have your own problems. You also have a big problem with the show horse, Dr. Thurston and his now very old small particles paper that admits extremely small Hazard Risks and even Confidence Intervals that include 1.0, not a good thing for a guy who is trying to help the EPA push more regs. Does EPA have a problem with the show horse, Dr. Thurston and his prominent associates on a study that dates to 2009 or earlier? a study that fails to show a relative risk/hazard risk that is a basis for more stringent small particle regulations.

The letter is attached, accompanied by attachments. excerpts form the attachments are inserted in the letter to make life easier for those who are not inclined to pursue the links. lazy.

I wish the letter was shorter, but you and your group and South Coast provided such a target rich environment.

John Dale Dunn MD JD  
Consultant Emergency Services/Peer Review  
Civilian Faculty, Emergency Medicine Residency  
Carl R. Darnall Army Med Center  
Fort Hood, Texas  
Medical Officer, Sheriff Bobby Grubbs  
Brown County, Texas  
325 784 6697 (h) 642 5073 (c)



**John Dale Dunn MD JD**

Diplomate ABEM, ABLM

Admitted but inactive, Texas and Louisiana Bars

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Phone 325 784-6697

E-mail [jddmdjd@web-access.net](mailto:jddmdjd@web-access.net)

January 19, 2016

Henry A. Roman, M.S. Industrial Economics, Incorporated (IEc) [har@indecon.com](mailto:har@indecon.com)

To: Henry A. Roman <[har@indecon.com](mailto:har@indecon.com)>

CC: George D. Thurston <[George.Thurston@nyumc.org](mailto:George.Thurston@nyumc.org)>;

Lisa A. Robinson <[robinson@hsph.harvard.edu](mailto:robinson@hsph.harvard.edu)>; Eric D. Ruder <[er@indecon.com](mailto:er@indecon.com)>

Re: The Proposed 2016 SCAQMD AQMP relies on deceptive human effects research claims and should be scrapped

Mr. Roman,

I will get to the point. Your supportive documents cite the work of George Thurston and in his paper he admits that he finds no evidence that Small Particle Air pollution is killing anyone. When the confidence interval crosses a relative risk of 1.0 all honest scientists declare a null effect.

George Thurston PhD and Co Authors can't find a small particle effect.

My position is that The September 15, 2015 *EHP* paper by Thurston, et al., found NO relationship between PM2.5 and total mortality during 2000-2009 in the publicly available NIH-AARP Diet and Health cohort (<http://ehp.niehs.nih.gov/1509676/>).

In the teased out data sets of the study Dr. Thurston tries, with his co authors, to make a silk purse out of pigs ear, because he found some subset data from carved out groups where the usual (for EPA air pollution epidemiologist could be found. But the pig's ear is still there—his findings are small non proof associations for those subgroups, the usual EPA ofal, not proof and an overall result of NO EFFECT.

Here's the important section of the abstract with my comments inserted in bold parens to show why the paper does not support the South Coast project to push more small particle regs:

**Results:** PM<sub>2.5</sub> exposure was significantly associated with total mortality (HR= 1.03, 95% CI =1.00, 1.05) (**overall CI includes 1.0—no effect**) and CVD mortality (HR=1.10, 95% CI=1.05, 1.15), but the association with respiratory mortality was not statistically significant (HR=1.05, 95% CI=0.98, 1.13) **Authors misused statistically significant, here because it only means**

5 - 3

**they had a desired p value, not results that proved anything).** A significant (**misused again**) association was found with respiratory mortality only among never smokers (HR=1.27; 95% CI: 1.03, 1.56). Associations with 10  $\mu\text{g}/\text{m}^3$  PM<sub>2.5</sub> exposures in yearly participant residential annual mean, or in metropolitan area-wide mean, were consistent with baseline exposure model results. Associations with PM<sub>2.5</sub> were similar when adjusted for ozone exposures. Analyses of California residents alone also yielded statistically significant PM<sub>2.5</sub> mortality HR's for total and CVD mortality

**(Not so, small associations don't prove anything, such as HR of 1.03 and 1.1 and anytime the small association is associated with a CI that includes 1.0, no effect can be asserted. And to repeat, all the findings in this study were statistically significant, the negative findings of no effect and the miniscule findings of a small positive effect—the authors intentionally deceive, but they follow a pattern in all air pollution studies of misusing the concept of statistical significance.)**

**Conclusions:** Long-term exposure to PM<sub>2.5</sub> air pollution was associated with an increased risk of total (**not true, CI included 1.0, miniscule non proof HR**) and CVD mortality (**again, not true, no proof from a small association, and other problems with parsing out a subset**) providing an independent test of the PM<sub>2.5</sub> – mortality relationship in a new large U.S. prospective cohort experiencing lower post-2000 PM<sub>2.5</sub> exposure levels. **(Again, small associations don't prove anything and CI that includes 1.0 is null effect. Not only that, but I would suggest that Thurston and colleagues fail the test when they don't advise that their study**

**I also object strongly to the misuse of the words that Thurston and co-authors pick to describe their results “statistically significant,” a term of art intentionally designed to put lipstick on a pig. Statistical significance is used by these EPA air pollution researchers to imply valid—however it is nothing more than a method for preventing randomness errors in data management and has nothing to do with the strength or validity of the results. For example in this case a statistically significant result of HR of 1.03 is no proof of anything in a population study, it is not even good enough to be hypothesis generating and requiring stronger or better evidence. As for a statistically significant result (by the data management test of p values) has a Confidence Interval that includes 1.0, the study is proof of nothing, it is a study with a null effect.**

**To parse out data to find a positive HR in CVD deaths is a deception too—in desk top death certificate tallies CVD deaths dominate but do not actually reflect a diagnosis, just a very uncertain guess. It does provide an opportunity to find a**

5 – 3  
(CONT'D)

small association; however, that means nothing about proof of causation.

Thurston, and colleagues, being ingenious and they are working for a regulatory entity, so they sliced and diced the data and found—voila—a way to tease out a small effect, admittedly a non proof small effect, that evaded the doom of a CI that included 1.0. It means nothing and is a trick. Shame on them. They aren't finding anything, they were just reworked the data piles to get to a HR that was enough to avoid the nullifying CI that included 1.0. Nice going, but still pseudo-science, because it requires believing in an HR of 1.1.

5 - 3  
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Since Dr. Thurston and his colleagues don't really know a mechanism for small particles at ambient levels can kill people, another data phenomenon deserves a comment—the CVD results showed a miniscule effect, but the Respiratory Deaths showed an overall no effect—BUT there was a data surprise, they found a nonsmoker HR that was positive with a relatively large (CI goes up when sample size goes down) and the CI stayed above 1.0 so they could use the magic words “statistically significant” in their deceptive way.

I will not belabor the obvious point that such a non sequitur deserves interesting and a measure of the uncertainties of population studies why the researchers are digging around in effects measures by HRs that are so small as not to deserve attention.

My conclusion is that Thurston and his co-authors were, no doubt, well paid by the NIH and had nothing to offer for the enviro agenda with their study—they are my exhibit one to prove the South Coast needs to reconsider its air pollution rags and reduce the burden on the residents.

I would also remind the South Coast officials that the Thurston study was a 6 state study that obviously must be considered in view of the California experience that will be outlined below—California, even Southern California where air pollution is higher than many other locations, shows no death effect when one assesses the deaths in California cohorts separately.

5 - 4

Michael Jarrett is one of Dr. Thurston's co-authors, and I am sure he could wax eloquent on the California null effect, since he has been running away from it for a long time. I also suspect that there is a California cohort that could be extracted pretty easily from the Thurston study (it's called zip codes) and studied and it would show the same null effect.

5 – 4  
(CONT'D)

**Imagine, to finish this section off—imagine the weak study Thurston and the almost dead certainty that the Thurston study would show no, nada, nunc effect in California. What’s your guess, Mr. Roman?**

**Guess what, Mr. Roman, there is a California cohort in the Thurston Study and it shows—just what I said, no effect**

**In 160,000 deaths in CA here’s the result provided by the Thurston et.al Table 3.**

Full Baseline Model for California Only  
160,209 deaths Results HR CI  
All deaths--1.02 (0.99, 1.04)  
CVD deaths 1.10 (1.05, 1.16)  
Respiratory deaths 1.01 (0.93, 1.10)

Again, no proof where the CI doesn’t include 1.0, and two parts of the cohort where CI includes 1.0.

The Thurston Study doesn’t pass the smell, taste or laugh test for proof of ambient air pollution caused deaths.

**EPA Research Scientist--Under Oath, Epidemiology can’t prove our case—we need human exposures**

To support that position and remind you, Mr. Roman, and Dr. Thurston, I provide **Appendix A**, attached to this emailed letter, a statement under oath by a Senior EPA official Robert Devlin PhD on the value of epidemiology studies in proving toxicity of air pollutants. I have highlighted for your convenience parsed out sections of his research where he admits epidemiology cannot prove causation, which is the reason the EPA funded attempts to find toxicity with human exposure experiments.

In his declaration under oath Dr. Devlin explains why he is heading up an EPA sponsored human exposure experiments project:

5 – 5

7. Epidemiological observations are the primary tool in the discovery of risks to public health such as that presented by ambient PM2.5. However, epidemiological studies do not generally provide direct evidence of causation. They indicate the existence or lack of a statistical relationship between ambient levels of PM2.5 and adverse health outcomes. Large population studies cannot assess the biological mechanisms (called biological plausibility) that could explain how inhaling ambient air pollution particles can cause illness or death in susceptible individuals. This sometimes leaves open the question of whether the observed association in the epidemiological study is causal or whether PM2.5 is merely a marker for some other unknown substance.

Controlled human exposure studies offer the opportunity to study small numbers of human subjects under carefully controlled exposure conditions and gain valuable insights

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into both the relative deposition of inhaled particles and the resulting health effects. Individuals studied can range from healthy people to individuals with cardiac or respiratory diseases of varying degrees of severity. In all cases, the specific protocols defining the subjects, the exposure conditions, and the evaluation procedures must be reviewed and approved by institutional review boards providing oversight for human experimentation. The exposure atmospheres studied vary, ranging from well-defined, single-component aerosols (such as black carbon or sulfuric acid) to atmospheres produced by recently developed particle concentrators, which concentrate the particles present in ambient air. The concentrations of particles studied are limited by ethical considerations and by concern for the range of concentrations, from the experimental setting to typical ambient concentration, over which findings need to be extrapolated.

Exhibit 1 at 36. Controlled human exposures studies have been conducted for decades on important pollutants such as ozone, particulate matter, nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), VOCs emitted in from new homes, and carbon monoxide (CO).

9. Controlled human exposure studies assess the biological plausibility of the associations observed in the large-population epidemiological studies. Controlled human exposure studies usually compare the response of an individual following exposure to clean air with their response following exposure to a pollutant that was generated or prepared under carefully controlled conditions, thus providing direct causal evidence that observed effects are related to the pollutant of interest. These studies are done under conditions that are controlled to ensure safety, with measurable, reversible physiological responses. They are not meant to cause clinically significant adverse health effects, but rather reversible physiological responses can be indicators of the potential for more serious outcomes in susceptible populations identified in epidemiology studies.

I would comment that the human exposure experiments were and are sponsored and funded by EPA in spite of the testimony by EPA officials and before the US Congress as well as public pronouncements by  
By the EPA that small particles are lethal, at any level of exposure that would make the exposure experiments illegal, unethical and prohibited by federal statute and American common law as well as international accords on human experiments.

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(CONT'D)



Reference Manual on Scientific Evidence explains the rules on epidemiology.

As a reminder of the rules of epidemiology that Dr. Thurston and your group as well as South Coast official should know, I attach as **Appendix B** the Chapter on Epidemiology in the *Reference Manual on Scientific Evidence* published by the National Academy of Science press and supervised by the Federal Judicial Center. The pertinent parts of the chapter on strength of association are highlighted.

As examples of the points made, from page 602:

*B. How Strong Is the Association Between the Exposure and Disease?*<sup>155</sup>

The relative risk is one of the cornerstones for causal inferences.<sup>156</sup> Relative risk measures the strength of the association. The higher the relative risk, the greater the likelihood that the relationship is causal.<sup>157</sup> For cigarette smoking, for example, the estimated relative risk for lung cancer is very high, about 10.<sup>158</sup> That is, the risk of lung cancer in smokers is approximately 10 times the risk in nonsmokers.

A relative risk of 10, as seen with smoking and lung cancer, is so high that it is extremely difficult to imagine any bias or confounding factor that might account for it. The higher the relative risk, the stronger the association and the lower the chance that the effect is spurious. Although lower relative risks can reflect causality, the epidemiologist will scrutinize such associations more closely because there is a greater chance that they are the result of uncontrolled con- founding or biases.

And from page 612:

Some courts have reasoned that when epidemiologic studies find that expo- sure to the agent causes an incidence in the exposed group that is more than twice the incidence in the unexposed group (i.e., a relative risk greater than 2.0), the probability that exposure to the agent caused a similarly situated individual's disease is greater than 50%.<sup>191</sup> These courts, accordingly, hold that when there is group-based evidence finding that exposure to an agent causes an incidence of dis- ease in the exposed group that is more than twice the incidence in the unexposed group, the evidence is sufficient to satisfy the plaintiff's burden of production and permit submission of specific causation to a jury. In such a case, the factfinder may find that it is more likely than not that the substance caused the particular plain- tiff's disease. Courts, thus, have permitted expert witnesses to testify to specific causation based on the logic of the effect of a doubling of the risk.<sup>192</sup>

GRADE Working Group work on strength of evidence.

5 – 6  
(CONT'D)

I also attach a paper by the highly regarded international public/private scientific group studying integrity in medical research science, called the GRADE Working Group (**Appendix C**), and the paper the discusses their guidelines for strength of evidence, with specifics on how to grade evidence for reliability. In the paper 9 of the series they produced they go to those specifics and I would recommend the paper for your review, Mr. Roman and the review of Dr. Thurston. The GRADE Guidance specifies in its quality of evidence discussion the importance of Relative Risk of 2 or more and the more the better. For proof of benefit the guidance is for a RR of 0.5 or less.

At item 2 on page 2 of the 9<sup>th</sup> paper in a series of articles produced by the GRADE Working Group for the *Journal of Clinical Epidemiology* (**Appendix C1**) the Authors detail the importance of robust Relative Risk, above 2.0 or below 0.5 as they outline in an adjacent table:

Table 1. Factors that may increase the quality of evidence

1. Large magnitude of effect (direct evidence, relative risk [RR] 2.0 to 5.0 or RR 0.5 < with no plausible confounders); very large with RR 2 to 5 or RR 0.5 or less and no serious problems with risk of bias or precision (sufficiently narrow confidence intervals); more likely to rate up if effect rapid and out of keeping with prior trajectory; usually supported by indirect evidence.
2. Dose-response gradient.
3. All plausible residual confounders or biases would reduce a demonstrated effect, or suggest a spurious effect when results show no effect.

5 – 7

Human experiments by EPA sponsored researchers have not been shown to support their claims that small particles kill—nor have EPA researchers been able to kill animals with extraordinary small particle air pollution exposures.

I not only assert that Dr. Thurston's study shows no evidence to prove deaths by small particles, but I would assert that all the portfolio of EPA sponsored studies on small particles fail to prove deaths because of the same flaws—small associations that prove nothing, no bench science to even suggest a mechanism of death and severely dishonest data torturing that I will explain hereunder.

The flawed EPA research portfolio on human effects of small particles.

There is a compelling listing of the California specific data on small particles pollution and death in all the major studies that are claimed to be proof of lethality. To find a segment of the population not effects is severely damaging to the EPA and CA EPA regime of regulatory efforts to control small particles.

5 - 8

James Enstrom, epidemiologist whom I have worked with to try to stop the research misconduct outlined above, did an analysis of the California cohorts from all the major the major studies that could be mined to separate out California cohorts. Enstrom found a stunning lack of small particle effect in California as demonstrated in the tables below and the dramatic Krewski map of the US showing a decline in small particle effects from highs in the Eastern US to lows and no effect in the West, including California, thought to have the worst air pollution in the nation. (**Appendix D**)

Shocking news, if you look at the Enstrom California cohort table below. The table of studies has stunningly negative results with the confidence interval of all but 3 of the studies crossing RR of 1.0. Game over, Mr. Roman. The Krewski Map shows no effects in California.

I suggest you Mr. Roman, and Dr. Thurston and his coauthors review this paper that has the null effect information, presented by Dr. Enstrom September 28, 2012 American Statistical Association 2012 JSM Proceedings Session Description and Enstrom Paper on "PM Not Killing CA"  
(<http://www.scientificintegrityinstitute.org/ASAS092812.pdf>) à find table on PM2.5 and total deaths in CA

For your convenience, Mr. Roman, I have inserted the link for Appendix D that shows the table of California cohorts from the EPA's favorite small particle air pollution studies where California cohorts could be separated. The California data pull was analyzed for RR and Confidence intervals by Dr. Enstrom and it shows a stunning pattern of NULL EFFECT of small particles on deaths.

See the tables on the next two pages and the Krewski Map on the third page. The pages are extracted from the document pages 2331-33.

**Table 1. Epidemiologic Cohort Studies of PM2.5 and Total Mortality in California**  
<http://www.scientificintegrityinstitute.org/Enstrom081512.pdf>  
 Relative risk of death from all causes (RR and 95% CI) associated with increase of  
 10 µg/m<sup>3</sup> in PM2.5

Krewski 2000 & 2010	CA CPS II Cohort (N=40,408 [18,000 M + 22,408 F]; 4 MSAs; 1979-1983 PM2.5; 44 covariates)	RR = 0.872 (0.805-0.944)	1982-1989
McDonnell 2000	CA AHSMOG Cohort (N=3,800 [1,347 M + 2,422 F]; SC&SD&SF AB; M RR=1.09(0.98-1.21) & F RR~0.98(0.92-1.03))	RR ~ 1.00 (0.95 – 1.05)	1977-1992
Jerrett 2005	CPS II Cohort in Los Angeles Basin (N=22,905; 267 zip code areas; 1999-2000 PM2.5; 44 cov + max confounders)	RR = 1.11 (0.99 - 1.25)	1982-2000
Enstrom 2005	CA CPS I Cohort (N=35,783 [15,573 M + 20,210 F]; 11 counties; 1979-1983 PM2.5; 25 county internal comparison)	RR = 1.039 (1.010-1.069) RR = 0.997 (0.978-1.016)	1973-1982 1983-2002
Enstrom 2006	CA CPS I Cohort (N=35,783 [15,573 M + 20,210 F]; 11 counties; 1979-1983 & 1999-2001 PM2.5)	RR = 1.061 (1.017-1.106) RR = 0.995 (0.968-1.024)	1973-1982 1983-2002
Zeger 2008	MCAPS Cohort “West” (3.1 M [1.5 M M + 1.6 M F]; Medicare enrollees in CA+OR+WA (CA=73%); 2000-2005 PM2.5)	RR = 0.989 (0.970-1.008)	2000-2005
Jerrett 2010	CA CPS II Cohort (N=77,767 [34,367 M + 43,400 F]; 54 counties; 2000 PM2.5; KRG ZIP; 20 ind cov+7 eco var; Slide 12)	RR ~ 0.994 (0.965-1.025)	1982-2000
Krewski 2010	CA CPS II Cohort (N=40,408; 4 MSAs; 1979-1983 PM2.5; 44 cov) (N=50,930; 7 MSAs; 1999-2000 PM2.5; 44 cov)	RR = 0.960 (0.920-1.002) RR = 0.968 (0.916-1.022)	1982-2000 1982-2000
Jerrett 2011	CA CPS II Cohort (N=73,609 [32,509 M + 41,100 F]; 54 counties; 2000 PM2.5; KRG ZIP Model; 20 ind cov+7 eco var; Table 28)	RR = 0.994 (0.965-1.024)	1982-2000
Jerrett 2011	CA CPS II Cohort (N=73,609 [32,509 M + 41,100 F]; 54 counties; 2000 PM2.5; Nine Model Ave; 20 ic+7 ev; Fig 22 & Tab 27-32)	RR = 1.002 (0.992-1.012)	1982-2000
Lipsett 2011	CA Teachers Cohort (N=73,489 [73,489 F]; 2000-2005 PM2.5)	RR = 1.01 (0.95 – 1.09)	2000-2005
Ostro 2011	CA Teachers Cohort (N=43,220 [43,220 F]; 2002-2007 PM2.5) replaced Ostro 2010 Incorrect 2010 Result:	RR = 1.06 (0.96 – 1.16) RR = 1.84 (1.66 – 2.05)	2002-2007 2002-2007

5 – 8  
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**Figure 1. Figures 21 and 5 from HEI Reanalysis Report (Krewski 2000)**

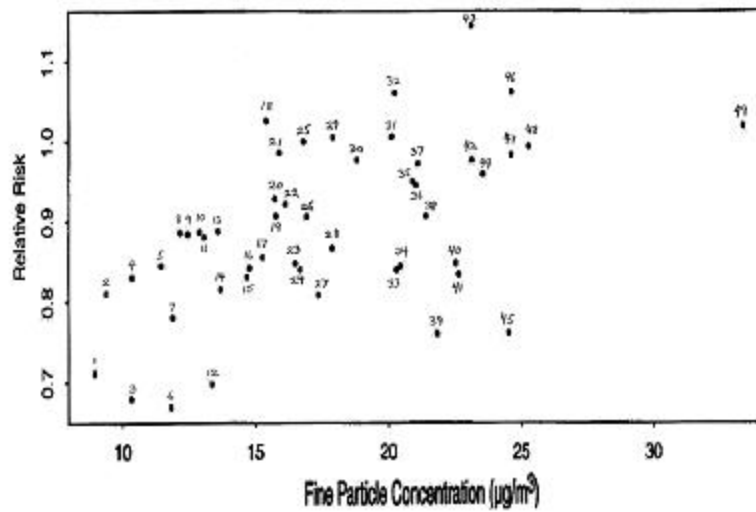
**Figure 21 Spatial Overlay of PM2.5 Level and Mortality Risk by City (page 197)  
Fine Particles and Mortality Risk**



Figure 21. Spatial overlay of fine particle levels and relative risk of mortality. Annual distribution for fine particles by city<sup>a</sup>. Low: 0.09-17.85, median: 11.09-21.01, high: 25.07-41.64. Annual distribution for relative risk of mortality: low: 0.82-0.71, median: 0.71-0.61, high: 0.61-1.12.

5 – 8  
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**Figure 5 (Upper Right) Relative Risk for PM2.5 and Total Mortality by City (page 161)  
All Cause Mortality (Excluding Boise City, Idaho)**



5 – 8  
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Mr. Roman, my request to you is that you reevaluate the Thurston paper and confirm what Dr. Thurston admits is no effect in his overall study. Then you must reject participation in any effort by the staff of South Coast to cobble together a case for more onerous regulations of small particles using the Thurston Paper or the Jarrett research of the last few years. You can see that Jarrett's studies in the tables show no effect.

I have written my comments to CARB on the Jarrett conurbation study and discuss it below. Under no circumstances should South Coast burden the citizens of the region based on the Thurston and Jarrett studies on small particle effects.

Since the death effects are projected by your studies from small particles, I will not address the arguments against accepting the other studies on ozone that are not in your area of activity.

Dr. Jarrett admits no effects at the big show in Sacramento.

Dr. Michael Jarrett, prominent air pollution researcher for CARB and EPA (UC Berkeley) had his head handed to him at the public debate/symposium on small particles, Sacramento CAL EPA offices February 26, 2010 as I narrated and told the tale here:

[http://www.americanthinker.com/articles/2010/03/californias\\_toxic\\_air\\_scare\\_ma.html](http://www.americanthinker.com/articles/2010/03/californias_toxic_air_scare_ma.html)

The 7 hour symposium/debate on small particles is on the video here:

[http://www.cal-span.org/media.php?folder\[\]=CARB](http://www.cal-span.org/media.php?folder[]=CARB)

5 – 9

At the debate, Dr. Jarrett admitted that he couldn't find a death effect in his studies of recent years. He admitted he could not show a death effect and he and CARB hired experts lost the debate to an expert group including Dr. Enstrom, UCLA, Roger McClellan, former Chair of the US EPA Clean Air Scientific Advisory Committee (CASAC), Suresh Moolgavkar MD, U of Washington Cancer Center.

A year and 3 quarters of a million dollars of CARB money later, Dr. Jarrett delivered what he couldn't deliver at Sacramento by what I would describe as flagrant pseudo-science that now is becoming very stylish in junk science for government circles—he did computer models till he could find one that gave him what he wanted. He added, along the way, a prominent list of co-authors:

Principal Investigator:

Michael Jerrett, PhD

Co-Investigators:

Richard T. Burnett, PhD, Arden Pope III, PhD, Daniel Krewski, PhD

George Thurston, ScD, George Christakos, PhD, ScD

Edward Hughes, PhD, Zev Ross, MS, Yuanli Shi, MD, Michael Thun, MD

Funny thing is he admitted his methodology which makes him some kind of evolution of stupid by him and all these prominent air pollution researchers. In his paper reporting small particle effects he and his many prominent co-authors reported positive effects from a parsing of the population data on a temporal spatial template called "conurbation"

that showed a positive death effect from small particle air pollution. He also reported the other models he used did not show any effect, and there were 8. So one modeling template gave the group what they wanted and they canned the other 8:

Such scientific strategies are risible, since repeating and confirming is the normal process, but I admit it gave me a big fat target with a group of charlatans, and I took advantage of the opportunity. See **(Appendix E)**.

Even with data mining and torturing, Dr. Jarrett found an association that was so small it was not proof of causation at all—just like the studies above with RR and HR of less than 1.1.

I had an easy time of it, making fun of Dr. Jarrett's and his high powered group's scientific misconduct, since he and his paper were his own worst enemies. Dr. Jarrett admitted he used multiple models to torture the data until it yielded his desired result, a small, I repeat small, association that would not, in proper application of the rules on magnitude of Relative Risk for epidemiological studies, outlined above, be considered proof of toxicity or lethality, or anything at all.

No matter, the CARB and US EPA and all the anxious advocates of efforts to reduce human activity would believe anything that Dr. Thurston or Dr. Jarrett claimed, even claims of thousands, even hundreds of thousands of lives saved from premature death.

Here are a few excerpts from my letter criticizing the conurbation paper—and I stand by those criticisms here:

My goodness, the subornation gambit is just another form of the well-known researcher trick of chopping the data under multiple methodologies until one finds the result desired with the computer, the mindless computer rigged to find that good result. Changing the geographic parameters to an urban and suburban mix to get a desired effect is bad science that produces outcome based junk.

The rules haven't changed. Dr. Jarrett can't tell us why or how small particles cause disease, so he's short on plausibility; he's also short on specificity because he just uses crude deaths in excess of the predicted and calls them premature. He also, even with such loose methodology, can only show effects in the range under 1.2, so he doesn't have an adequate magnitude of effect to claim proof of causation.

Just because Dr. Jarrett is committed to eliminating pollution of any kind, doesn't mean he can claim he is eliminating a toxin, particularly when one considers the following.

1. The researchers have not even bothered to define the nature of the toxin satisfactorily—small particles is a size, 2.5 microns, but it could be weaponized anthrax or agricultural dust—would anyone claim the two are equally toxic?
2. The researchers do not have exposure information—they also use air pollution monitor information for outside air when people

live indoors 90 % of the time and they just average it and use it as an exposure index—when will such nonsense be stopped?

3. The decision to use crude death rates and arbitrary short lag times for endpoint of “premature” deaths ignores the nature of chronic diseases. Low level air pollution does not acutely poison people. People die after long periods of illness or disease and failed medical treatment, not some acute exposure to a few microns in a cubic meter of air. What are the researchers studying, is it a real disease or toxic effect or just variable death rates in a population?

4. Premature deaths from what disease, what toxic effect?

Specificity is a surrogate in toxicology for plausibility, but it is a separate, important consideration—how can Dr. Jarrett just use premature deaths as an endpoint when we have yet no biologically or toxicologically plausible mechanism for deaths from ambient levels of air pollution. Dr. Jarrett could be counting deaths from any one of a number of confounding causes.

5. If premature deaths are to be the endpoint rather than tissue proven or test proven disease, when will Dr. Jarrett and his colleagues admit to the problem that they torture crude death rate data for short term rate increases that might correlate with air pollution increases? What proof is that? If they are wrong, a pile of studies that result from such data torturing to find associations is just another extraordinary example of a pattern of research where the principles can't differentiate the noise

(death rate variability) from the signal (whatever deaths that might be attributable to air pollution). Monitor information in the range of the noise created by variability of the death rates, lack of real exposure and toxicity information, and arbitrary lag times provide great opportunities for trolling through the data for a correlation. Could it be that Dr. Jarrett was trolling with the good ship conurbation?

6. If death rates vary as much as 15 percent in populations from winter to summer and variability of death rates from day to day can easily be that much, is Dr. Jarrett, *sans* biological plausibility just reporting on the noise and claiming it is a signal. If the results are in the low range, how much noise, how much signal?

7. If the effect reported fails to meet the *Reference Manual recommendation* that effects be at least 100 percent to be adequate for proof of toxicity, is the Jarrett study just another hypothesis generating study under the rules or another supportive study for the needs of the agency and the air pollution regulatory agenda?

8. Is this conurbation model anything more than a sophisticated form of confirmation bias driven by intellectual passion and commitment with tunnel vision?

9. Is Dr. Jarrett falling for the well-established problem in the air pollution human health effects science community of intellectual passion and commitment combined with confirmation bias and the faggot fallacy? (That faggot fallacy is discussed in *Judging Science* by Huber and Foster (MIT press 1997), and it is the fallacy based on the “belief that multiple pieces of evidence, each independently



being suspect or weak, provide strong evidence when bundled together.”)

10. Given the source of funding and the CARB commitment to regulating small particles, does anyone on the review panel think Dr. Jarrett would ever, ever receive funding from US EPA or CARB if he repeated his candid admission of February 26, 2010 that would shut down the CARB particle control industry and shut down the CARB and US EPA juggernaut?

And

### **Cargo Cult Science in the Movie Capital State**

I would ask that the reader consider the old and amusing story of Cargo Cults—the mistaken notion of primitives that if they followed some of the appearances of old air fields in South East Asia after the war was over, the planes would return with the people who flew them. Cargo cult science is a fallacious conduct, the pretentious display of scientific customs and methodology that has no substance and is unreliable and unscientific.

The many PhDs arrayed in this very expensive study, even if they presented themselves solemnly and wore white coats, would be involved in a data dredging charade. Bad science cannot be hidden like a Potemkin village, because in the end it’s still about the reliability and the credibility of the evidence. Dr. Jerrett’s evidence is the great example of the old Texas saying often wrong but never in doubt.

I won’t belabor the history and the previous studies that will be brought to the reader’s attention about California studies that show no effect. Use of the word significantly might be over the top.

1. A major study by the Health Effects Institute shows no excess mortality from fine particles.
2. The Enstrom Study of a robust cohort of Californians studied over a significant period of time shows no death effect from small particles.
3. The US EPA 2002 report of diesel exhaust health effects showed no effect.
4. The previously mentioned Pope second half data and the Krewski map of effects shows that California residents are not suffering any adverse effects from air pollution.

A good honest study that disproves a hypothesis is controlling—it is evidence that the premise is wrong. Consensus science, a vote of the paid researchers present, or a reliance on authority offends the rules of science—a process that must first of all hold skepticism rather than acquiescence in high regard. Unfortunately hundreds of thousands of dollars from agency coffers can influence research and eliminate self-examination, skepticism and most of all humility and adherence to the rules of science even when it goes against one’s personal interests. 8

5 – 9  
(CONT’D)

5 – 9  
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Scientists must be committed to a careful and skeptical search for truth and reliable results and solutions; they can't become tools of political interests.  
Hello—any scientists on watch at CARB or CA EPA?

5 – 10

/Economics analysis

I will not spend much time in this letter discussion the inappropriate economics risk/benefits conclusions that come from creating out of whole cloth deaths that never happened and attaching them to a value of almost 10 million per, all to prove up the value of controlling small particles. Mr. Roman, you and I both know that the benefits side of the balance sheet becomes insignificant and not enough to support burdensome regulations if the economists can't put a multimillion dollar value on the specious and unsupported claims of thousands of deaths in the South Coast catchment population.

Let us agree that if you can't prove that the research shows deaths, the economics analyses are worthless exaggerated exercises in releasing agit-prop to the accepting and supportive CA media. The claims certainly overestimate claims of injury by orders of magnitude.

5 – 11

Conclusion

Overwhelming evidence shows that the IEc documents misrepresent and exaggerate the relationship of PM2.5 and ozone to total mortality in the South Coast Air Basin (SCAB) and California. I have explained why. Your faulty claims are embedded in:

“IEc Literature Review of Air Pollution-Related Health Endpoints and Concentration-Response Functions for Particulate Matter: Results and Recommendations Draft Report December 4, 2015” ([http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/3a\\_draft\\_pm.pdf?sfvrsn=4](http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/3a_draft_pm.pdf?sfvrsn=4))

and

the PPT “IEc Review of Health Endpoints and Economic Valuation for Socioeconomic Report on 2016 South Coast AQMP” ([http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/3f\\_stmpr\\_presentation\\_121015.pdf?sfvrsn=4](http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/3f_stmpr_presentation_121015.pdf?sfvrsn=4)).

I have been working on the problem of bad epidemiology used by CARB and its allies for many years now, trying to cultivate better scientific approaches and fewer panicky exercises in bloviating by EPA advocacy mavens. I would be happy if they would just stop publishing papers that don't prove anything.

I have been in the practice of medicine, mostly emergency medicine, for just short of 44 years now and I am yet to witness a death from small particles—how bout that? Dr. Thurston is a desk bound person, and I own a stethoscope—he counts death certificates and I fill them out when asked and I assure you that the autopsy rate and the methods displayed by EPA researchers make for epidemiology that really isn't reliable science.

The rules are still in my favor as explained above. My submission to CARB in the 2008 battle over small particle regulations covers the same ground as this letter. The scientific

misconduct of EPA CARB and South Coast sponsored researchers is the same now as many years ago. They violate basic rules of epidemiology to create unreal and unreliable, exaggerated claims of deaths to panic the people and intimidate the policy makers and politicians.

Since I have never seen a person die from American ambient air pollution I condemn and disapprove the the death certificate desk exercises of the EPA, CARB and South Coast researchers as sham science , not real investigations of causes of death. The studies are soaked in deceitful methods and data torturing that result in false assertions and scare mongering for political advantage and to promote an aggressive policy agenda that harms the citizens. **Nothing has changed in 20 years, just more deceptions and more junk science epidemiology paid for by CARB, South Coast, CA EPA and US EPA. The Rules of epidemiology haven't changed, just the number of times the rules were broken by researchers funded by the EPA.**

In 2012 James Enstrom and other doctoral-level scientists submitted detailed public comments to SCAQMD, which are shown on pages 213-254 of the 2012 AQMP Appendix I Health Effects Document (<http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-carb-epa-sip-dec2012/2012-aqmp-carb-epa-sip-submittal-appendix-i.pdf>).

These comments provide overwhelming evidence as of 2012 that there is NO relationship between PM2.5 and total mortality in California.

James Enstrom put together an in depth study of the issue in a submission to Science that I support and agree with. The evidence that “Particulate Matter Does Not Cause Premature Deaths” is now even stronger, as summarized in my August 17, 2015 submission to *Science* (<https://www.nas.org/images/documents/PM2.5.pdf>).

I assure you that you, your associates and Dr. Thurston are well advised to inform South Coast officials of my letter and my assertions—more importantly Dr. Thurston and your group, Mr. Roman, have to be honest and forthcoming—you should inform the South Coast Board about the weakness of small associations in epidemiological studies, the lack of bench science to support the claims of small particle lethality, and the null effects of studies on California populations that are found in a focused analysis of the many famous studies of small particle air pollution effects that are referenced above in this letter.

You should also tell the South Coast Board that the studies are piling up to indicate that CA residents don't suffer from any effects of small particle pollution.

I would also advise you to advise South Coast officials not to try to make the Jarrett study a study that justifies the imposition of more regulations that will be a burden on the economy and welfare of the South Coast Citizens.

I hope this letter alerts you to the dangers of deceit in public policy matters and how bad science cannot justify excessive government regulatory regimes. I have previously warned CARB and CA EPA officials that the False Claims Act provides for severe penalties for those who use taxpayer money, received, for example as a grant, to perpetrate a fraud. Treble damages get your attention?

5 – 11  
(CONT'D)

5 – 11  
(CONT'D)

Thank you for your consideration of this letter and I will copy Dr. Thurston and the individuals listed above. I will not be contacting South Coast Officials and Board Members, anticipating your response to indicate you will be forthcoming and honest in your upcoming presentations to South Coast.

Do you promise to be honest, Mr. Roman, or will you continue this charade of bad science I pursuit of panicking the public and promoting more environmental power grabbing? Your choice.

Remember what I said above about treble damages from the False Claims Act—Dr. Thurston's study was funded by the NIH, which is funded by taxpayers like me.

Cordially,  
s/JDunn MD/  
John Dale Dunn MD JD

Attached documents

Appendix A, Dr. Robert Devlin admission under oath  
Appendix B, Chapter on Epidemiology *Reference Manual on Scientific Evidence*  
Appendix C GRADE Working Group website information  
Appendix C 1 GRADE Working Group paper 9 of a series  
Appendix D Enstrom paper with tables and US map on human death effects from Small Particles  
Appendix E Letter by Dunn criticizing Jarrett's conurbation study of California air pollution effects

### **NOTES FOR COMMENT LETTER #5**

All attached materials (Appendices A through E) can be found in Comment Letter #5 in Responses to Comments for Appendix I of the Draft Final 2016 AQMP.

## Responses to Comment Letter #5

Submitted by John Dunn on January 23, 2016

### 5-1 and 5-2

These comments are introductory, summarizing the Commenter's opinions and claims without supporting evidence.

The Commenter's attempts throughout this comment letter to denigrate the work of SCAQMD staff, its expert consultant Industrial Economics, Inc. (IEc) and their scientific advisor, Dr. George Thurston, lack merit.

The Draft Final 2016 AQMP is designed to provide a path to clean air goals and address federal Clean Air Act (CAA) requirements for both ozone and PM<sub>2.5</sub> standards. The Commenter's objection to staff's efforts on the 2016 AQMP are noted.

### 5-3

See staff response to Comment 12-1. The referenced article by Thurston et al. (2015) was discussed in the IEc report on PM-related C-R functions. However, it should be clarified that this study was not included in the analysis quantifying public health impacts of the Draft Final 2016 AQMP for reasons related to "benefit transfer." Please refer to the IEc report ([http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec\\_pmlitreview\\_092916.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec_pmlitreview_092916.pdf)) for detailed discussion.

### 5-4

Please see staff response to Comments 5-3 and 12-1. Regarding the public health benefits associated with reduced long-term exposure to PM<sub>2.5</sub>, the Draft Final Socioeconomic Report quantified the benefits based on the pooled results of four estimates from the following studies: Jerrett et al. (2005), Krewski et al. (2009), and Jerrett et al, (2013). Please see Chapter 3 and Appendix 3-B of the Draft Final Socioeconomic Report for more information.

### 5-5

The Commenter appears to be criticizing the validity of particulate matter human exposure studies conducted by U.S. EPA. The Commenter's suggestion that exposure studies conducted by U.S. EPA were somehow improper is offered without any detailed evidence to support the allegation. The allegation is inconsistent with standard protocols associated with human exposure studies. SCAQMD staff also notes that these studies are regulated. See, e.g., 40 C.F.R. §26.101 et seq [Basic EPA Policy for Protection of Subjects in Human Research Conducted or Supported by EPA].

Moreover, the quoted statement was taken out of context and misinterpreted by the Commenter. Staff agrees with the quoted statement that, in epidemiological research, "[l]arge population studies cannot assess the biological mechanisms (called biological plausibility) that could explain how inhaling ambient air pollution particles can cause illness or death in susceptible individuals." The purpose of carefully designed controlled human exposure studies, where the adverse physiological effects are reversible, is to help uncover the biological mechanisms underlying the correlations observed in epidemiological studies.

Both type of studies were carefully considered in U.S. EPA's causal determination of air pollution-related health effects.

For more discussion, please see Appendix I of the Draft Final 2016 AQMP which summarizes the health effects and causal determinations as assessed by U.S. EPA and other scientific agencies, discusses some recent studies published since the latest U.S. EPA reviews, gives some quantitative estimates of the health impacts of particulate matter air pollution in the South Coast Air Basin, and presents a "local perspective" by highlighting studies conducted in the South Coast Air Basin, Southern California, or California.

#### 5-6

Staff acknowledges receipt of the excerpt from the *Reference Manual on Scientific Evidence* and the materials regarding GRADE Working Group's work. Staff rejects any insinuation that U.S. EPA, CARB, and the researchers and experts upon which they and SCAQMD have relied lack knowledge of or have acted inconsistent with applicable basic research principles.

#### 5-7

See staff response to Comment 5-5 and Appendix 1 of the Draft Final 2016 AQMP. It should be clarified that in U.S. EPA's 2009 Integrated Science Assessment (ISA) for Particulate Matter, a large body of scientific research supported a causal determination for the relationship between PM2.5 exposure and increased mortality risk. The ISA document describes the observational (epidemiological) studies, which lend support to effects on human populations, as well as laboratory studies which help explain the underlying biological mechanisms.

#### 5-8

Staff denies the existence of any research misconduct by SCAQMD staff and its expert consultant IEC in the application of established scientific evidence in the AQMP public health benefits analysis. Similar comments, including a table containing many of the entries in Table 1 of Comment 5-8, were submitted to CARB during its rulemaking for diesel vehicles.<sup>1</sup> CARB's staff responded to those comments and that response is included in the following statement:

*In summary, the commenter presents a table of effect estimates from studies that either have insufficient statistical power to show whether or not there is an effect, that are not peer reviewed and published, or that are based on populations in which one would not expect to see an effect due to subject age. In addition, the table omits more studies than it includes. The table omits the majority of published, peer reviewed studies that have been performed in the U.S. Virtually all of the omitted studies report a statistically significant association between long-term exposure to PM2.5 and all-cause mortality, often larger than the ~5% effect estimate we have applied in our cost-benefit analyses. While the commenter's table focuses on the lowest estimates available*

<sup>1</sup> Final Statement of Reasons for Rulemaking: for Amendments to the Regulation to Reduce Emissions from In-Use On-Road Diesel Vehicles Made as Part of the Public Hearing to Consider Proposed Amendments to the Regulation to Reduce Emissions from In-Use On-Road Diesel-Fueled Vehicles, the Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure, and the Regulation to Control Emissions from In-Use On-road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Intermodal Rail Yard Facilities. December 17, 2010.

<https://www.arb.ca.gov/regact/2010/truckbus10/tbfsor.pdf>

*(published or not), the ones left off of the table range up to several times the estimate we have used.*

It is not the purpose of the Draft Final Socioeconomic Report to reevaluate the work of U.S. EPA and CARB with regard to making causal determinations for the health effects of air pollution. The U.S. EPA is tasked with assessing new and emerging air quality science, including health studies, as part of the process of setting the federal air quality standards. In other words, the U.S. EPA's role is to assess the causal relationships between the pollutants and the different types of health endpoints. It is then SCAQMD's role is to describe the public health impacts of poor air quality in our region, as well as to develop and implement an emission reduction strategy to attain the federal and state ambient air quality standards.

#### 5-9

SCAQMD's expert consultant, IEC, conducted a thorough evaluation of what studies should be included and relied upon by SCAQMD in its socioeconomic analysis. IEC's reasoning for recommending Jerrett et al. (2013) along with two other studies for quantification of PM2.5 mortality-related effects is described in their report (available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec\\_pmlitreview\\_092916.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec_pmlitreview_092916.pdf)) See also See page 3-6 of the Draft Final Socioeconomic Report.

#### 5-10

Staff disagrees with Commenter's claims. The Draft Final Socioeconomic Report, which includes costs of control measures, benefits of clean air, regional and sub-regional job impacts, and an environmental justice (EJ) analysis at the community level, was prepared to further inform public discussions and the decision-making process associated with the adoption of the Draft Final 2016 AQMP. However, the SCAQMD is legally required to adopt a plan to attain the National Ambient Air Quality Standards. The legal requirements for the AQMP are described in Chapter 1 of the Draft Final 2016 AQMP. See staff response to Comment 12-1 for more discussion.

#### 5-11

SCAQMD staff disagrees with the Commenter's analysis. The Commenter's analysis has been previously submitted to both U.S. EPA and CARB. Both agencies have rejected it. SCAQMD's expert consultant IEC reviewed the relevant literature and health effects studies and has found that the conclusions of U.S. EPA and CARB remain sound.

The SCAQMD contracted with IEC, who worked with their scientific advisor Dr. George Thurston, to perform a thorough review of air pollution-related health effects literature using study evaluation criteria presented to and reviewed by the 2016 AQMP Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group, and based on the review results, make recommendations regarding methodologies and data to be used for the public health benefits of the 2016 AQMP. Additionally, IEC's draft findings and recommendations regarding both C-R and benefits valuation functions were all discussed and reviewed at multiple meetings of the STMPR Advisory Group, which were open to public participation with advanced meeting notices electronically mailed to all 2016 AQMP interested parties.

For detailed information, please see Chapter 3 and Appendix 3-B of the Draft Final Socioeconomic Report and IEC's reports regarding concentration-response functions. The IEC reports are available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos\\_november2016/evaluationcriteria\\_113016.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/evaluationcriteria_113016.pdf) (selection criteria);



[http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec\\_pmlitreview\\_092916.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec_pmlitreview_092916.pdf) (PM-related C-R functions); [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec\\_gasplitreview\\_092916.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iec_gasplitreview_092916.pdf) (gaseous pollutant-related C-R functions).

SCAQMD staff responses to the comments submitted by Dr. James Enstrom on the 2012 AQMP can be found at: [http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-\(february-2013\)/2012-aqmp-response-to-comments/part-1-comment-letters-2012.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-(february-2013)/2012-aqmp-response-to-comments/part-1-comment-letters-2012.pdf).

See also staff response to Comment 12-1.

## COMMENT LETTER # 6—JAMES ENSTROM EMAIL, DECEMBER 15, 2015

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December 15, 2015

Henry A. Roman, M.S. (HSPH)  
Principal Industrial Economics, Incorporated (IEc)  
har@indecon.com

Dear Mr. Roman,

This email letter is a follow-up to my unanswered December 11, 2015 telephone message to you regarding your December 10, 2015 SCAQMD STMRP Socioeconomic Session Presentation “Recommendation for Health Effects C-R and Valuation Function” ([http://www.aqmd.gov/home/library/meeting-agendasminutes/agenda?title=STMPR\\_Socio\\_121015](http://www.aqmd.gov/home/library/meeting-agendasminutes/agenda?title=STMPR_Socio_121015)). I have overwhelming evidence that your draft IEc documents misrepresent and exaggerate the relationship of PM2.5 and ozone to total mortality in the South Coast Air Basin (SCAB) and California.

I am particularly concerned about the “IEc Literature Review of Air Pollution-Related Health Endpoints and Concentration-Response Functions for Particulate Matter: Results and Recommendations Draft Report December 4, 2015” ([http://www.aqmd.gov/docs/defaultsource/Agendas/STMPR-Advisory-Group/december-2015/3a\\_draft\\_pm.pdf?sfvrsn=4](http://www.aqmd.gov/docs/defaultsource/Agendas/STMPR-Advisory-Group/december-2015/3a_draft_pm.pdf?sfvrsn=4)) and the PPT “IEc Review of Health Endpoints and Economic Valuation for Socioeconomic Report on 2016 South Coast AQMP” ([http://www.aqmd.gov/docs/default-source/Agendas/STMPRAdvisory-Group/december-2015/3f\\_stmpr\\_presentation\\_121015.pdf?sfvrsn=4](http://www.aqmd.gov/docs/default-source/Agendas/STMPRAdvisory-Group/december-2015/3f_stmpr_presentation_121015.pdf?sfvrsn=4)).

In 2012 I and other doctoral-level scientists submitted detailed public comments to SCAQMD, which are shown on pages 213-254 of the 2012 AQMP Appendix I Health Effects Document (<http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012air-quality-management-plan/final-carb-epa-sip-dec2012/2012-aqmp-carb-epa-sip-submittalappendix-i.pdf>). These comments provide overwhelming evidence as of 2012 that there is NO relationship between PM2.5 and total mortality in California. The evidence that “Particulate Matter Does Not Cause Premature Deaths” is now even stronger, as summarized in my August 17, 2015 submission to Science (<https://www.nas.org/images/documents/PM2.5.pdf>).

You cited some of this NULL evidence in the September 21, 2006 IEc EPA Expert Elicitation Report ([http://www3.epa.gov/ttnecas1/regdata/Uncertainty/pm\\_ee\\_report.pdf](http://www3.epa.gov/ttnecas1/regdata/Uncertainty/pm_ee_report.pdf)) and Dr. George Thurston has been well aware of this NULL evidence ever since he and I attended the February 26, 2010 CARB Symposium “Estimating Premature Deaths from Long-term Exposure to PM2.5” ([http://www.arb.ca.gov/research/health/pm-mort/pm-mort-ws\\_02-26-10.htm](http://www.arb.ca.gov/research/health/pm-mort/pm-mort-ws_02-26-10.htm)). Furthermore, the September 15, 2015 EHP paper by Thurston, et al., found NO relationship between PM2.5 and total mortality during 2000-2009 in the publicly available NIH-AARP Diet and Health cohort (<http://ehp.niehs.nih.gov/1509676/>).

Thus, I request that you and/or Dr. Thurston notify me by December 21, 2015 that all final IEc documents prepared for the 2016 SCAQMD AQMP will cite the overwhelming NULL evidence described above and will state that PM2.5 and ozone have NO relationship to total mortality in the SCAB or California. If I do not receive such a notification by December 21, 2015, I will immediately thereafter

6 – 2  
(CONT'D)

begin explaining the deliberate misrepresentations and exaggerations contained in the draft IEC documents to SCAQMD Board Members, certain SCAQMD staff members, impacted SCAB business leaders, the U.S. House Science Committee, scientific colleagues, the press, and others who are interested in having regulatory policy in the SCAB and California based on the truth.

Thank you for your prompt attention to this important request.

Sincerely yours,

James E. Enstrom, Ph.D. (Stanford), M.P.H. (UCLA) UCLA and Scientific Integrity Institute  
jenstrom@ucla.edu (310) 472-4274

cc: George D. Thurston, D.Sc. (HSPH) <George.Thurston@nyumc.org> Lisa A. Robinson, M.P.P. (Harvard) <robinson@hsph.harvard.edu> Eric D. Ruder, M.S. (HSPH) <er@indecon.com>

## Responses to Comment Letter #6

Submitted by James Enstrom on December 15, 2015

### 6-1

Henry Roman, Principal at Industrial Economics, Inc. (IEc), provided a written response via electronic mail to the commenter letter on December 18, 2015 wherein he advised Commenter that materials would be reviewed and acknowledged the Commenter's "different interpretation of the air pollution health effects literature" (A copy of Mr. Roman's December 18, 2015 response is included as Attachment A to Comment Letter #7.) Mr. Roman also advised Commenter that he needed to direct his comments "through the systems established by SCAQMD."

With respect to the claims regarding the health effects of PM and ozone, please see staff response to Comment 12-1.

### 6-2

In his December 18, 2015 response, Mr. Roman declined the Commenter's request to amend the IEc draft report. The referenced draft report had already been submitted for review and discussion at the December 10, 2015 meeting of the Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group. The participating STMPR members provided many comments and suggestions, but there was no corroboration of the Commenter's claims. (The meeting minutes can be found at [http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/stmpr\\_socmins\\_121015.pdf](http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/december-2015/stmpr_socmins_121015.pdf).)

**COMMENT LETTER #7—JAMES ENSTROM EMAIL, DECEMBER 23, 2015**

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December 23, 2015

Andrew M. Schwarz, M.S.T. (Antioch), M.F.S. (Yale), M.B.A. (GWU)  
President Industrial Economics, Incorporated (IEc)  
ams@indecon.com

Dear President Schwarz,

In his December 18, 2015 reply to me, IEc Principal Henry A. Roman refuses to properly modify draft IEc documents prepared for socioeconomic justification of the 2016 SCAQMD AQMP (<http://www.scientificintegrityinstitute.org/Roman121815.pdf>). My December 15, 2015 email letter requests that he properly cite the massive evidence that there are NO deaths due to PM2.5 and ozone in California (<http://www.scientificintegrityinstitute.org/Roman121515.pdf>). The draft IEc documents are not simply “a different interpretation of the air pollution health effects literature,” but they include “deliberate misrepresentations and exaggerations.” I believe the draft documents violate IEc policies (<http://www.indecon.com/iecweb/AboutUsValues.aspx>): “Our Values--IEc has been delivering unbiased work products for more than 30 years” and “Committed to Objective Analysis--We believe that the most intellectually honest basis for decision making is to let the evidence speak.”

Thus, I request that you and the other IEc Principals immediately review the overwhelming NULL evidence described in my December 15, 2015 email letter and its eight weblinks. Then, I request that you notify me via email that all final IEc documents prepared for the 2016 SCAQMD AQMP will cite this overwhelming NULL evidence and will state that PM2.5 and ozone have NO relationship to total mortality in the SCAB or California. Until I receive such a notification from you, I will continue the efforts that I began this week to explain the deliberate misrepresentations and exaggerations contained in the draft IEc documents to SCAQMD Board Members, the U.S. House Science Committee, and others who are interested in having regulatory policy in the SCAB and California based on the truth. If the final IEc documents do not include a complete and accurate presentation of the NULL mortality evidence regarding PM2.5 and ozone, I will make the case that all 22 IEc Principals, Dr. George D. Thurston, and EPA are conspiring with SCAQMD EO Barry Russell Wallerstein, D.Env., in a deliberate effort to impose scientifically unjustified and economically destructive EPA regulations on 17 million SCAB residents.

In order to understand how the ground is shifting under EPA-support groups like IEc, please read the December 23, 2015 Wall Street Journal editorial “Brushing Back a Lawless EPA” (<http://www.wsj.com/articles/brushing-back-a-lawless-epa-1450829307>). I hope you take my request seriously, because it is very serious and I am a very serious scientist.

Thank you very much for your consideration.

Sincerely yours,

James E. Enstrom, Ph.D. (Stanford), M.P.H. (UCLA)  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)  
(310) 472-4274

7-1

cc:

Jennifer R. Baxter, M.E.S. (Yale) [jbaxter@indecon.com](mailto:jbaxter@indecon.com)  
Gail B. Coad, M.B.A. (Stanford) [gbc@indecon.com](mailto:gbc@indecon.com)  
Mark S. Curry, M.P.A (Indiana) [msc@indecon.com](mailto:msc@indecon.com)  
Rachel DelVecchio, M.E. (MIT) [rdelvecchio@indecon.com](mailto:rdelvecchio@indecon.com)  
Michael C. Donlan, M.B.A. (Stanford) [mcd@indecon.com](mailto:mcd@indecon.com)  
Neal Etre, M.E.M. (Yale) [netre@indecon.com](mailto:netre@indecon.com)  
Mark D. Ewen, M.P.P. (Michigan) [mde@indecon.com](mailto:mde@indecon.com)  
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Jason Price, M.P.P (Michigan) [jprice@indecon.com](mailto:jprice@indecon.com)  
Director Chiara Trabucchi [ct@indecon.com](mailto:ct@indecon.com)  
Robert E. Unsworth, M.F.S. (Yale) [reu@indecon.com](mailto:reu@indecon.com)

## COMMENT LETTER #7—ATTACHMENT A

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IEc

INDUSTRIAL ECONOMICS, INCORPORATED

18 December 2015

Dr. James Enstrom  
UCLA Pub Hlth  
BOX 951772, A1-295 CHS  
Los Angeles, CA 90095-1772

Dear Dr. Enstrom:

We received your telephone message of December 11, 2015 and your email dated December 15, 2015 in which you cite papers and other information you would like us to consider as part of our work supporting the South Coast Air Quality Management District (SCAQMD). We will review the referenced materials.

We understand from both communications that you have a different interpretation of the air pollution health effects literature than the one presented in our review. As you know, there is a formal process by which the public can submit comments to SCAQMD regarding the development of the Air Quality Management Plan. I believe that is the appropriate forum for you to present your concerns for consideration by SCAQMD.

Regarding your request that IEc amend our documents to state “that PM2.5 and ozone have NO relationship to total mortality in the SCAB or California,” IEc respectfully declines. IEc has a well-established reputation for conducting objective analyses. We disagree with your allegation that our work contains “deliberate misrepresentations and exaggerations.”

If you choose to continue this discussion, we request that you direct your comments through the systems established by SCAQMD. Written comments may be submitted to SCAQMD’s Executive Officer, Dr. Barry R. Wallerstein ([BWallerstein@aqmd.gov](mailto:BWallerstein@aqmd.gov); 909-396-3131).

Sincerely,



Henry Roman  
Principal

cc:  
Mr. Eric Ruder, IEc;  
Dr. George Thurston, NYU Medical School

Industrial Economics, Incorporated  
2067 Massachusetts Avenue  
Cambridge, MA 02140 USA  
617.354.0074 | 617.354.0463 fax  
[www.indecon.com](http://www.indecon.com)

### **NOTES FOR COMMENT LETTER #7**

The following attachment(s) were included with the comment letter submitted by James Enstrom on December 23, 2015 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #6



## Response to Comment Letter #7

Submitted by James Enstrom on December 23, 2015

### 7-1

In a response letter to the Commenter dated December 18, 2015 (attached to Comment Letter #7), IEC Principal Henry Roman stated that IEC would consider the information provided by the Commenter and, after doing so, IEC ultimately decided not to include the Commenter's information in their final report. With respect to the claims regarding the health effects of PM and ozone, please see staff response to Comment 12-1.

## COMMENT LETTER #8—JAMES ENSTROM EMAIL, JANUARY 4, 2016

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January 4, 2016

Michael T. Huguenin, A.B. (physics, WU), M.Sc. (management, MIT)  
IEc Co-Founder and Special Consultant  
mikehuguenin@indecon.com

Dear IEC Co-Founder Huguenin,

I am writing you because IEC President Andrew M. Schwarz has not responded to my December 23, 2015 email letter or to my December 29, 2015 telephone message (<http://scientificintegrityinstitute.org/IEcP122315.pdf>) regarding my December 15, 2015 letter to IEC Principal Henry A. Roman (<http://scientificintegrityinstitute.org/Roman121515.pdf>). Thus, I request that you and/or Mr. Schwarz convince Mr. Roman that the final IEC documents prepared for the 2016 SCAQMD AQMP must properly summarize the overwhelming evidence since 2000 that there are NO premature deaths in the SCAB or California caused by PM2.5 or ozone and thus must base the health benefits and socioeconomic assessments on NO premature deaths. Indeed, the SCAB has an age-adjusted total death rate that is among the lowest in the United States and the entire world and does not have premature or excess deaths due to air pollution!

8-1

Please carefully read my email letters to Mr. Schwarz and Mr. Roman for detailed documentation of the NULL evidence. SCAQMD Health Effects Officer (HEO) Jean Joseph Ospital, Dr.P.H., is fully aware of this NULL evidence, which includes all the results from the 2007-2013 SCAQMD Agreement No. R06-337 project involving George D. Thurston, Sc.D. Also, HEO Ospital knows that this NULL evidence needs to be properly presented to the SCAQMD Governing Board at a 2016 hearing on “the health impacts of particulate matter air pollution in the South Coast Air Basin”, as per CHSC Section 40471(b) (<http://scientificintegrityinstitute.org/Ospital073115.pdf>).

Until I receive an email response or telephone call from you confirming that final IEC documents will fully comply with my above request, I will continue taking the measures described in my email letters to Mr. Schwarz and Mr. Roman. Because you have basic knowledge of physics like I do, I want you to know that as of January 16, 2016, “critical mass” will be achieved on the SCAQMD Governing Board. This “critical mass” will make possible a “nuclear chain reaction” against scientifically unjustified PM2.5 and ozone regulations in the SCAB. Also, I predict that there will a “thermonuclear explosion” on November 8, 2015 that will lead to the destruction of all scientifically unjustified PM2.5 and ozone regulations in the United States.

Thank you for your consideration of my important request. Please take it very seriously!

Sincerely yours,

James E. Enstrom, B.S. (physics, HMC), M.S. (physics, Stanford),  
Ph.D. (physics, Stanford), M.P.H. (epidemiology, UCLA)  
UCLA and Scientific Integrity Institute  
jenstrom@ucla.edu  
(310) 472-4274

cc:

IEc President Andrew M. Schwarz <ams@indecon.com>

IEc Principal Henry A. Roman <har@indecon.com>

SCAQMD HEO Jean J. Ospital <jospital@aqmd.gov>

## COMMENT LETTER #8—ATTACHMENT A

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Date: Fri, 31 Jul 2015 14:20:44 -0700

To: Jean J. Ospital <jospital@aqmd.gov> From: "James E. Enstrom" <jenstrom@ucla.edu> Subject: SCAQMD Health Effects Officer Will Be Held Accountable Cc: Philip M. Fine <pfine@aqmd.gov>, Mohsen Nazemi <mnazemi@aqmd.gov>, Ian MacMillan <imacmillan@aqmd.gov>, C. Arden Pope III <cap3@byu.edu>, Jane V. Hall <jhall@fullerton.edu>

July 31, 2015

Jean J. Ospital, Dr.P.H.  
SCAQMD Health Effects Officer  
jospital@aqmd.gov

Dear Dr. Ospital,

I understand that you are retiring from SCAQMD today. I am going to make every effort to see that the next SCAQMD Health Effects Officer is a doctoral level epidemiologist or statistician who honestly and objectively evaluates and summarizes air pollution health effects evidence, particularly the evidence that applies to the South Coast Air Basin (SCAB). I plan to continue my efforts to correct the false and out of context health effects evidence contained in the 2003, 2007, and 2012 AQMPs and the 2008 MATES III and 2015 MATES IV. You are personally responsible for the inaccurate and exaggerated health effects contained in all of these documents. This faulty evidence has been used as the basis for countless SCAQMD regulations that are not justified on a scientific, public health, or economic basis. These SCAQMD regulations have had a severe adverse impact on the Exide Battery Recycling Plant in Vernon, the Exxon Mobil Refinery in Torrance, the World Logistics Center in Moreno Valley, thousands of truckers at the Ports of Los Angeles and Long Beach, and thousands of manufacturers throughout the SCAB.

The SCAB has age-adjusted total death rates and total cancer death rates that are lower than the corresponding rates in almost all of the 50 states. Furthermore, it has been known since the 2000 HEI Reanalysis Report, particularly by PM2.5 experts like Dr. Pope, that Los Angeles area residents have a relatively low absolute PM2.5 mortality risk. You have been fully aware of my concerns at least since our April 29, 2011 and July 6, 2011 personal meetings at UCLA and SCAQMD. In spite of this, you have continued to make exaggerated claims about the health effects of PM2.5, diesel PM, and ozone in the SCAB. Furthermore, you have never complied with California Health and Safety Code Section 40471 (b), which requires that before an AQMP is finalized and approved, the SCAQMD Governing Board must hold a public hearing on "the report and the peer review" regarding "the health impacts of particulate matter air pollution in the South Coast Air Basin."

Eventually, you and the others who have exaggerated the health effects of PM2.5, diesel PM, and ozone will be held accountable. Part of this accounting will come through the U.S. Congress, particularly by use of the Secret Science Reform Act, which has been approved by the House of Representatives and is awaiting a vote by the Senate. More details are provided in my June 11, 2015 Tenth International Conference on Climate Change Panel 8 presentation (<http://www.ustream.tv/recorded/63542583>).

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
jenstrom@ucla.edu

cc: Philip M. Fine, Ph.D., SCAQMD Deputy Executive Officer pfine@aqmd.gov  
Mohsen Nazemi, SCAQMD Deputy Executive Officer mnazemi@aqmd.gov  
Ian MacMillan, SCAQMD Planning & Rules Manager imacmillan@aqmd.gov  
C. Arden Pope, III, Ph.D., Leading PM2.5 Premature Deaths Expert cap3@byu.edu  
Jane V. Hall, SCAQMD PM2.5 Premature Deaths Expert jhall@fullerton.edu

### **NOTES FOR COMMENT LETTER #8**

The following attachment(s) were included with the comment letter submitted by James Enstrom on January 4, 2016 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #7 and Attachments

## Response to Comment Letter #8

Submitted by James Enstrom on January 4, 2016

### 8-1

See staff response to Comment 7-1 and a letter sent by Industrial Economics, Inc. (IEc) in response to comment letters #7 and #8 (the IEc letter is attached to this response with IEc's permission).

This comment letter also includes an attached letter sent to former SCAQMD Health Effects Officer Jean Ospital, dated July 31, 2015. With respect to comments in that letter alleging use of false and out of context health effects evidence in prior AQMPs and MATES studies, SCAQMD unequivocally denies those claims. With respect to the claims regarding the health effects of PM and ozone, please see staff response to Comment 12-1. Finally, with respect to the claim that the SCAQMD has not complied with California Health & Safety Code section 40471(b), please see staff response to Comment 9-3.

**Industrial Economics Inc. Response to Comment Letters #7 and #8**



INDUSTRIAL ECONOMICS, INCORPORATED

7 January 2016

Via Email: [jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)

Dr. James Enstrom  
UCLA

Dr. Enstrom:

I am in receipt of your email dated December 23, 2015 to me in response to the prior December 18, 2015 email to you from my colleague Henry Roman. I am also in receipt of your January 4, 2016 email to Michael Huguenin, IEc Co-Founder and Special Consultant.

As indicated in the December 18<sup>th</sup> email, there is a specified process to direct any comments relating to the work we are undertaking for the South Coast Air Quality Management District (SCAQMD), namely that written comments may be submitted to SCAQMD's Executive Officer, Dr. Barry R. Wallerstein ([bwallerstein@aqmd.gov](mailto:bwallerstein@aqmd.gov); 909 396 3131).

I am informed by SCAQMD that as of January 6, 2016, the District had not received any comments from you on this matter. It appears you have chosen to disregard the specified public comment process and to repeatedly contact IEc directly. We demand that you cease and desist in this behavior.

Should you desire to submit comments on the project, please follow the specified public comment procedures. SCAQMD advised us on January 6, 2016 that comments were still being accepted. We do not know and make no representation as to when comments will cease to be accepted.

We reserve all rights and remedies in connection with this matter, and nothing contained herein shall constitute a waiver of any such rights or remedies.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Andrew M. Schwarz'.

Andrew M. Schwarz  
President, Industrial Economics, Incorporated

Industrial Economics, Incorporated  
2067 Massachusetts Avenue  
Cambridge, MA 02140 USA  
617.354.0074 | 617.354.0463 fax  
[www.indecon.com](http://www.indecon.com)



## COMMENT LETTER #9—JAMES ENSTROM EMAIL, JANUARY 11, 2016

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January 11, 2016

President Andrew M. Schwarz  
Industrial Economics, Incorporated (IEc)  
ams@indecon.com

Dear President Schwarz,

9-1

I greatly appreciate your January 7, 2016 response to my January 4, 2016 request to IEc CoFounder Michael T. Huguenin regarding my December 15, 2015 letter to IEc Principal Henry A. Roman (<http://scientificintegrityinstitute.org/Roman121515.pdf>). However, regarding your sentence “I am informed by SCAQMD that as of January 6, 2016, the District had not received any comments from you on this matter,” you have been given DELIBERATELY FALSE information by SCAQMD. I submitted November 16, 2015 comments to Mr. Joseph C. Cassmassi (<http://scientificintegrityinstitute.org/Cassmassi111615.pdf>) and July 31, 2015 comments to Dr. Jean J. Ospital (<http://scientificintegrityinstitute.org/Ospital073115.pdf>). In addition, I have submitted relevant public comments and research findings to SCAQMD for more than a decade and they have ALL been IGNORED or DISMISSED. This is the primary reason why I have contacted IEc and I consider my contact with IEc to be quite appropriate.

My November and July comments make substantive points on health effects, measurements, exposures, sources, and CHSC requirements that are directly relevant to the IEc documents that have been prepared for the 2016 SCAQMD AQMP Socioeconomic Analysis. I have not received an acknowledgement or response from any of the numerous SCAQMD staff members who received my comments, all of whom have been copied on this message. Thus, I request that the SCAQMD staff members below respond to you and me after reading all of my comments.

9-2

Also, I request that you obtain from George D. Thurston, D.Sc., the COMPLETE files for the 2007-2013 SCAQMD Agreement No. R06-337 Project “Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort” and the 2009-2015 NIH-AARP STaRs Project Number 200903-0012 “Long-Term Air Pollution Exposure and Mortality.” Dr. Thurston was a key investigator on these projects and both of them found NO relationship between PM2.5 and total mortality in California or the SCAB. Dr. Thurston must reveal to you and me the underlying documents and COMPLETE results for these two projects, without FOIA requests. Please examine my November 22, 2015 Table of detailed evidence of NO relationship (RR = 1.00) between PM2.5 and total mortality in California. In spite of overwhelming NULL evidence, the SCAQMD leadership makes this alarmist, unsubstantiated, and false claim (<http://scientificintegrityinstitute.org/TRTB102111.mov>): “The fact is that according to the best estimates nearly five thousand Southern Californians die prematurely each year due to air pollution.”

All final IEc documents prepared for the 2016 SCAQMD AQMP must properly summarize the overwhelming evidence, which is shown in my Table, that there are NO premature deaths in the SCAB or California caused by PM2.5 or ozone. As per the stated IEc values (“the most intellectually honest basis for decision making is to let the evidence speak”), the IEc documents must base the health benefits and socioeconomic assessments in the SCAB on NO premature

9-2  
(CONT'D)

deaths. Also, the IEc documents should state that there is NO established etiologic mechanism by which about one teaspoon of PM2.5 inhaled over a lifetime can cause premature deaths. Furthermore, the IEc documents should state that the SCAB has an age-adjusted total death rate that is lower than the rate in 49 states, which makes it totally implausible that the SCAB experiences premature or excess deaths caused by PM2.5 or ozone!

9-3

Finally, the IEc documents should be consistent with the findings in the 2016 AQMP that are required by CHSC Section 40471(b): "On or before December 31, 2001, and every three years thereafter [i.e., 2016], as part of the preparation of the air quality management plan revisions, the south coast district board, in conjunction with a public health organization or agency, shall prepare a report on the health impacts of particulate matter air pollution in the South Coast Air Basin. The south coast district board shall submit its report to the advisory council appointed pursuant to Section 40428 for review and comment. The advisory council shall undertake peer review concerning the report prior to its finalization and public release. The south coast district board shall hold public hearings concerning the report and the peer review, and shall append to the report any additional material or information that results from the peer review and public hearings." (<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=4000141000&file=40460-40471>).

We will soon learn if either of us get a substantive response from SCAQMD staff regarding this message. I will contact you after January 15, 2016 to discuss this matter further.

Thank you very much for your professionalism and cooperation.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)  
(310) 472-4274

cc:

IEc Staff:

Co-Founder Michael T. Huguenin <mikehuguenin@indecon.com>

Principal Henry A. Roman <har@indecon.com>

SCAQMD Staff:

Planning & Rules Director Joseph C. Cassmassi <jcassmassi@aqmd.gov>

Health Effects Officer Jean J. Ospital <jospital@aqmd.gov>

Health Effects Officer Jo Kay Chan Ghosh <jghosh@aqmd.gov>

Deputy Executive Officer Philip M. Fine <pfine@aqmd.gov>

Deputy Executive Officer Mohsen Nazemi <mnazemi@aqmd.gov>

Deputy Executive Officer Chung S. Liu <cliu@aqmd.gov>

Assistant Deputy Executive Officer Laki T. Tisopulos <ltisopulos@aqmd.gov>

Planning & Rules Manager Ian MacMillan <imacmillan@aqmd.gov>

Air Quality Specialist Xinqiu Zhang <xzhang@aqmd.gov>  
Air Quality Specialist Kalam Cheung <kcheung@aqmd.gov>  
Air Quality Specialist Jong Hoon Lee <jhlee@aqmd.gov>  
Air Quality Specialist Olga Pikelnaya <opikelnaya@aqmd.gov>  
Program Supervisor Sang-Mi Lee <slee@aqmd.gov>  
Program Supervisor Elaine Shen <eshen@aqmd.gov>  
Program Supervisor Shah Dabirian <sdabirian@aqmd.gov>

IEc and SCAQMD Experts on PM2.5 Premature Deaths:

NYU Professor George D. Thurston <George.Thurston@nyumc.org>  
BYU Professor C. Arden Pope, III <cap3@byu.edu>  
CSUF Professor Jane V. Hall <jhall@fullerton.edu>  
SCAQMD Experts on SCAB Air Pollution Health Effects: UCLA Professor of Epidemiology Beate R. Ritz <britz@ucla.edu> UCLA Professor of EHS Yifang Zhu <yifang@ucla.edu>

SCAQMD Experts on SCAB Socioeconomic Health Effects:

American U Professor Erdak Tekin <tekin@american.edu>  
UCLA Professor Paul M. Ong <pmong@ucla.edu>  
UCR Professor Gloria Gonzalez-Rivera <gloria.gonzalez@ucr.edu>  
CSULB Professor Lisa M. Grobar <lisa.grobar@csulb.edu>  
CCSCE Director Stephen M. Levy <slevy@ccsce.com>

## COMMENT LETTER #9—ATTACHMENT A

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From: James E. Enstrom [mailto:jenstrom@ucla.edu] Sent: Monday, November 16, 2015 9:46 AM To: 'Joe Cassmassi' <jcassmassi@aqmd.gov> Cc: 'Xinqiu Zhang' <xzhang@aqmd.gov>; 'Kalam Cheung' <kcheung@aqmd.gov>; 'Sang-Mi Lee' <slee@aqmd.gov>; 'Chung Liu' <cliu@aqmd.gov>; 'Yifang Zhu' <yifang@ucla.edu> Subject: Important Request re November 17 SCAQMD STMPR AG Agenda

November 16, 2015

Joe Cassmassi

Planning and Rules Director  
SCAQMD 2016 Air Quality Management Plan (AQMP)  
Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group  
jcassmassi@aqmd.gov

Dear Mr. Cassmassi,

I am submitting these written public comments to the STMPR Advisory Group and to the SCAQMD staff members who are presenting at the November 17, 2015 Modeling Session Meeting. I make four basic points that are highly relevant to the preparation of the 2016 AQMP, although none of these points are on the Modeling Session Agenda. I request that all four of my points be addressed by the STMPR Advisory Group and SCAQMD staff as soon as possible.

1) There is overwhelming evidence that the ambient levels of 8-hour ozone and 24-hour fine particulate matter (PM<sub>2.5</sub>) throughout the South Coast Air Basin (SCAB), as measured by SCAQMD (<http://www.aqmd.gov/home/library/air-quality-data-studies>), are substantially below the current USEPA NAAQS of 75 ppb for 8-hour ozone and of 35 µg/m<sup>3</sup> for 24-hour PM<sub>2.5</sub> (<http://www3.epa.gov/ttn/naaqs/criteria.html>). For instance, on November 15, 2015, the entire SCAB had an ambient 8-hour maximum ozone exposure of 53 ppb. The November 15, 2015 forecast for ambient 24-hour PM<sub>2.5</sub> exposure at 38 monitoring stations throughout the SCAB ranged from 10 to 21 µg/m<sup>3</sup>, with an average of 12.9 µg/m<sup>3</sup>.

2) There is overwhelming evidence that personal exposure to ozone and PM<sub>2.5</sub> among the residents of the SCAB is much lower than the ambient exposure levels cited above. For instance, from June 1995 to May 1996 the average personal exposure of school children was 11.4 ppb in Upland and 13.9 ppb in mountain towns between Crestline and Running Springs (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1637960/pdf/envhper00304-0121.pdf>).

3) There is strong evidence that China is the source of a significant portion of the ozone (<http://news.sciencemag.org/earth/2014/09/china-blamed-u-s-ozone>) and PM<sub>2.5</sub> (<http://blogs.wsj.com/chinarealtime/2010/12/01/california-pollution-made-in-china/>) in the SCAB and throughout California. Sources of ozone and PM<sub>2.5</sub> that are outside of the SCAB need to be addressed in the 2016 AQMP.

4) Public hearings need to be held as soon as possible before the SCAQMD Board regarding the latest report and peer review on “the health impacts of particulate matter air pollution in the South Coast Air Basin,” in accordance with California Health and Safety Code Section 40471(b)

(<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=40001-41000&file=4046040471>). Such hearings have been mandated every three years since 2001, but they have never been held before the SCAQMD Board Members. There is strong evidence that the health impacts of particulate matter in the SCAB are very minimal, as I have repeatedly stated to SCAQMD during the past decade.

In order to understand the importance of my request, please read recent comments critical of EPA, CARB, and SCAQMD (<http://www.scientificintegrityinstitute.org/BC110115091215.pdf>). These comments address both ozone and PM2.5 and have been published in the Wall Street Journal, the Los Angeles Daily News, the Bakersfield Californian, and the San Bernardino Sun. They include an op-ed by an SCAQMD Board Member and statements of concern by San Joaquin Valley Air Pollution Control Officer Seyed Sadredin.

Thank you very much for your prompt attention to my request.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)  
(310) 472-4274

cc:

Xinqiu Zhang <xzhang@aqmd.gov>  
Kalam Cheung <kcheung@aqmd.gov>  
Sang-Mi Lee <slee@aqmd.gov>  
Chung Liu <cliu@aqmd.gov>  
Yifang Zhu <yifang@ucla.edu>

## COMMENT LETTER #9—ATTACHMENT B

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CONFIDENTIAL November 22, 2015 “PM2.5 is Not Killing Californians” by James E. Enstrom, Ph.D., M.P.H.

Krewski 2000 & 2010 CA CPS II Cohort N=40,408 RR = 0.872 (0.805-0.944) 1982-1989 (N=[18,000 M + 22,408 F]; 4 MSAs; 1979-1983 PM2.5; 44 covariates)

McDonnell 2000 CA AHSMOG Cohort N~3,800 RR ~ 1.00 (0.95 – 1.05) 1977-1992 (N~[1,347 M + 2,422 F]; SC&SD&SF AB; M RR=1.09(0.98-1.21) & F RR~0.98(0.92-1.03))

Jerrett 2005 CPS II Cohort in LA Basin N=22,905 RR = 1.11 (0.99 - 1.25) 1982-2000 (N=22,905 M & F; 267 zip code areas; 1999-2000 PM2.5; 44 cov + max confounders)

Enstrom 2005 CA CPS I Cohort N=35,783 RR = 1.039 (1.010-1.069) 1973-1982 (N=[15,573 M + 20,210 F]; 11 counties; 1979-1983 PM2.5) RR = 0.997 (0.978-1.016) 1983-2002

Enstrom 2006 CA CPS I Cohort N=35,783 RR = 1.061 (1.017-1.106) 1973-1982 (11 counties; 1979-1983 & 1999-2001 PM2.5) RR = 0.995 (0.968-1.024) 1983-2002

Zeger 2008 MCAPS Cohort “West” N=3,100,000 RR = 0.989 (0.970-1.008) 2000-2005 (N=[1.5 M M + 1.6 M F]; Medicare enrollees in CA+OR+WA (CA=73%); 2000-2005 PM2.5)

Jerrett 2010 CA CPS II Cohort N=77,767 RR ~ 0.994 (0.965-1.025) 1982-2000 (N=[34,367 M + 43,400 F]; 54 counties; 2000 PM2.5; KRG ZIP; 20 ind cov+7 eco var; Slide 12)

Krewski 2010 CA CPS II Cohort (4 MSAs; 1979-1983 PM2.5; 44 cov) N=40,408 RR = 0.960 (0.920-1.002) 1982-2000 (7 MSAs; 1999-2000 PM2.5; 44 cov) N=50,930 RR = 0.968 (0.916-1.022) 1982-2000

Jerrett 2011 CA CPS II Cohort N=73,609 RR = 0.994 (0.965-1.024) 1982-2000 (N=[32,509 M + 41,100 F]; 54 counties; 2000 PM2.5; KRG ZIP Model; 20 ind cov+7 eco var; Table 28)

Jerrett 2011 CA CPS II Cohort N=73,609 RR = 1.002 (0.992-1.012) 1982-2000 (N=[32,509 M + 41,100 F]; 54 counties; 2000 PM2.5; Nine Model Ave; 20 ic+7 ev; Fig 22 & Tab 27-32)

Lipsett 2011 CA Teachers Cohort N=73,489 RR = 1.01 (0.95 – 1.09) 2000-2005 (N=[73,489 F]; 2000-2005 PM2.5)

Ostro 2011 CA Teachers Cohort N=43,220 RR = 1.06 (0.96 – 1.16) 2002-2007 (N=[43,220 F]; 2002-2007 PM2.5)

Jerrett 2013 CA CPS II Cohort N=73,711 RR = 1.060 (1.003–1.120) 1982-2000 (N=[~32,550 M + ~41,161 F]; 54 counties; 2000 PM2.5; LUR Conurb Model; 42 ind cov+7 eco var+5 metro; Table 6)

Jerrett 2013 CA CPS II Cohort N=73,711 RR = 1.028 (0.957-1.104) 1982-2000 (same parameters and model as above, except including co-pollutants NO2 and Ozone; Table 5)

Thurston 2015 CA NIH-AARP Cohort N=160,209 RR = 1.02 (0.99 -1.04) 2000-2009 (N=[~95,965 M + ~64,245 F]; full baseline model: PM2.5 by zip code; Table 3)

Enstrom 2015 unpub CA NIH-AARP Cohort N=160,368 RR = 1.001 (0.949-1.055) 2000-2009 (N=[~96,059 M + ~64,309 F]; full baseline model: 2000 PM2.5 by county)

## References for Table 1

Enstrom JE (2005). Fine particulate air pollution and total mortality among elderly Californians, 1973-2002. *Inhal Toxicol* 2005;17:803-816 ([http://www.arb.ca.gov/planning/gmerp/dec1plan/gmerp\\_comments/enstrom.pdf](http://www.arb.ca.gov/planning/gmerp/dec1plan/gmerp_comments/enstrom.pdf)) and (<http://www.scientificintegrityinstitute.org/IT121505.pdf>)

Enstrom JE (2006). Response to "A Critique of 'Fine Particulate Air Pollution and Total Mortality Among Elderly Californians, 1973-2002' by Bert Brunekreef, PhD, and Gerard Hoek, PhD", *Inhal Toxicol* 2006;18:509-514 (<http://www.scientificintegrityinstitute.org/IT060106.pdf>) and (<http://www.scientificintegrityinstitute.org/ITBH060106.pdf>)

Enstrom JE (2012). Particulate Matter is Not Killing Californians. Proceedings of the American Statistical Association Joint Statistical Meeting, Section on Risk Analysis, San Diego, CA, pages 23242336, 2012. (<http://www.scientificintegrityinstitute.org/ASAS092812.pdf>)

Jerrett M, Burnett RT, Ma R, Pope CA III, Krewski D, Newbold KB, Thurston G, Shi Y, Finkelstein N, Calle EE, Thun MJ (2005). Spatial Analysis of Air Pollution and Mortality in Los Angeles. *Epidemiology* 2005;16:727-736 (<http://www.scientificintegrityinstitute.org/Jerrett110105.pdf>)

Jerrett M (2010). February 26, 2010 CARB Symposium Presentation by Principal Investigator, Michael Jerrett, UC Berkeley/CARB Proposal No. 2624-254 "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort" (<http://www.scientificintegrityinstitute.org/CARBJerrett022610.pdf>)

Jerrett M (2011). October 28, 2011 Revised Final Report for Contract No. 06-332 to CARB Research Screening Committee, Principal Investigator Michael Jerrett, "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort" Co-Investigators: Burnett RT, Pope CA III, Krewski D, Thurston G, Christakos G, Hughes E, Ross Z, Shi Y, Thun M (<http://www.arb.ca.gov/research/rsc/10-28-11/item1dfr06-332.pdf>) and (<http://www.scientificintegrityinstitute.org/Jerrett012510.pdf>) and (<http://www.scientificintegrityinstitute.org/JerrettCriticism102811.pdf>)

Jerrett M, Burnett RT, Beckerman BS, Turner MC, Krewski D, Thurston G, Martin RV, van Donkelaar A, Hughes E, Shi Y, Gapstur SM, Thun MJ, Pope CA 3rd. Spatial analysis of air pollution and mortality in California. *Am J Respir Crit Care Med*. 2013 Sep 1;188(5):593-9. doi: 10.1164/rccm.201303-0609OC. PMID: 23805824

Krewski D (2000). "Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality: HEI Special Report. July 2000"

(<http://pubs.healtheffects.org/view.php?id=6>). Figure 5 and Figure 21 of Part II: Sensitivity Analyses (<http://pubs.healtheffects.org/getfile.php?u=275>) and (<http://www.scientificintegrityinstitute.org/HEIFigure5093010.pdf>)

Krewski D (2009). Krewski D, Jerrett M, Burnett RT, Ma R, Hughes E, Shi Y, Turner MC, Pope CA III, Thurston G, Calle EE, Thun MJ. Extended Analysis of the American Cancer Society Study of Particulate Air Pollution and Mortality. HEI Research Report 140. May 2009 (<http://pubs.healtheffects.org/view.php?id=315>)

Krewski D (2010). August 31, 2010 letter from Krewski to Health Effects Institute and CARB with California-specific PM2.5 mortality results from Table 33 in Krewski 2009 ([http://www.arb.ca.gov/research/health/pm-mort/HEI\\_Correspondence.pdf](http://www.arb.ca.gov/research/health/pm-mort/HEI_Correspondence.pdf))

Lipsett MJ, Ostro BD, Reynolds P, Goldberg D, Hertz A, Jerrett M, Smith DF, Garcia C, Chang ET, Bernstein L (2011). Long-term Exposure to Air Pollution and Cardiorespiratory Disease in the California Teachers Study Cohort. *Am J Respir Crit Care Med* 2011;184:828–835 (<http://ajrccm.atsjournals.org/content/184/7/828.full.pdf>)

McDonnell WF; Nishino-Ishikawa N; Petersen FF; Chen LH; Abbey DE (2000). Relationships of mortality with the fine and coarse fractions of long-term ambient PM10 concentrations in nonsmokers. *J Expo Anal Environ Epidemiol* 2000;10:427-436 (<http://www.scientificintegrityinstitute.org/JEAEE090100.pdf>)

Ostro B, Lipsett M, Reynolds P, Goldberg D, Hertz A, Garcia C, Henderson KD, Bernstein L (2010). Long-Term Exposure to Constituents of Fine Particulate Air Pollution and Mortality: Results from the California Teachers Study. *Environ Health Perspect* 2010;118:363-369 with June 2011 Erratum (<http://ehp03.niehs.nih.gov/article/info:doi/10.1289/ehp.0901181>)

Pope CA III, Dockery DW. (2006). Health Effects of Fine Particulate Air Pollution: Lines that Connect. *JAWMA, Critical Review*. 56(6):709-742 (<http://www.scientificintegrityinstitute.org/PopeDockery2006.pdf>) and (<http://www.scientificintegrityinstitute.org/PopePPT2006.pdf>)

U.S. EPA (2012). Regulatory Impact Analysis related to the Proposed Revisions to the National Ambient Air Quality Standards for Particulate Matter EPA-452/R-12-003 ([http://www.epa.gov/ttn/ecas/regdata/RIAs/PMRIACombinedFile\\_Bookmarked.pdf](http://www.epa.gov/ttn/ecas/regdata/RIAs/PMRIACombinedFile_Bookmarked.pdf))

Thurston GD, Ahn J, Cromar KR, Shao Y, Reynolds HR, Jerrett M, Lim CC, Shanley R, Park Y, Hayes RB. Ambient Particulate Matter Air Pollution Exposure and Mortality in the NIH-AARP Diet and Health Cohort. *Environ Health Perspect*. 2015 Sep 15. [Epub ahead of print] PMID: 26370657

Zeger SL, Dominici F, McDermott A, Samet JM (2008). Mortality in the Medicare Population and Chronic Exposure to Fine Particulate Air Pollution in Urban Centers (2000-2005). *Environ Health Perspect* 2008;116:1614-1619 (<http://ehp03.niehs.nih.gov/article/info:doi/10.1289/ehp.11449>)



## **NOTES FOR COMMENT LETTER #9**

The following attachment(s) were included with the comment letter submitted by James Enstrom on January 11, 2016 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #6
2. Comment Letter #8: Attachment A

## Response to Comment Letter #9

Submitted by James Enstrom on January 11, 2016

### 9-1

Staff has diligently attempted to respond to all comments submitted by the Commenter, even though he has frequently commented outside traditional processes. See e.g., responses to comment letters #6 through #11 submitted to Industrial Economics, Inc. (IEc) and responses to comment letters #12 through #14 submitted to the SCAQMD staff; 2012 AQMP's Responses to Comments can be found here: [http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-\(february-2013\)/2012-aqmp-response-to-comments/part-1-comment-letters-2012.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-(february-2013)/2012-aqmp-response-to-comments/part-1-comment-letters-2012.pdf). The document includes staff responses to the comments submitted by the Commenter for the 2012 AQMP.

With respect to the November 16, 2015 letter that was sent to the SCAQMD's former Rules and Planning Director, Joe Cassmassi. The letter was publicly acknowledged and verbally responded to in detail at the November 17, 2015 meeting of the Scientific, Technical and Modeling Peer Review (STMPPR) Advisory Group. The meeting minutes can be found at [http://www.aqmd.gov/docs/default-source/Agendas/STMPPR-Advisory-Group/november-2015/stmpr\\_modminutes\\_111715.pdf](http://www.aqmd.gov/docs/default-source/Agendas/STMPPR-Advisory-Group/november-2015/stmpr_modminutes_111715.pdf).

With respect to the letter sent by the Commenter to former SCAQMD Health Effects Officer Jean Ospital, dated July 31, 2015, please see staff response to Comment 8-1.

### 9-2

In a response letter to the Commenter dated December 18, 2015 (attached to Comment Letter #7), IEc Principal Henry Roman stated that IEc would consider the information provided by the Commenter and, after doing so, IEc ultimately decided not to include the Commenter's information in their final report. With respect to the claims regarding the health effects of PM and ozone, please see staff response to Comment 12-1. See also staff responses to Comments 5-5 and 5-7 for a discussion of using laboratory studies to uncover the biological mechanisms underlying the correlation between pollutant concentration and population health outcomes observed in epidemiological studies. As health outcomes are influenced by many factors ranging from genetic to environmental, the lower age-adjusted total death rate in the region does not automatically imply that the environmental factor of air pollution has no effect on mortality risks for the residents of this region.

### 9-3

SCAQMD complies with its obligations under California Health & Safety Code section 40471(b) by preparing Appendix 1 – Health Effects. That document has been prepared in conjunction with a public health organization (the California Office of Environmental Health Hazard Assessment) and it has been peer reviewed through the AQMD Advisory Council. The SCAQMD complies with its obligation to hold a public hearing when the Governing Board holds a public hearing to discuss and decide upon the AQMP.

**COMMENT LETTER #10—JAMES ENSTROM EMAIL, FEBRUARY 10, 2016**

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February 10, 2016

Dear Mr. Roman,

10 - 1

Since no one from IEC or SCAQMD has responded to my January 11, 2016 email letter below, I am resending it to you, Dr. Thurston, and President Schwarz and requesting a response from each of you. You all need to realize that the number of Americans who believe PM2.5 causes premature deaths has just gotten smaller. Please read about SCOTUS and the EPA Clean Power Plan in today's WSJ "Court Blocks Obama's Power-Plant Rule" and today's NYT "Supreme Court Deals Blow to Obama's Efforts to Regulate Coal Emissions." As you know, the primary health benefit from the Clean Power Plan is an alleged reduction in PM2.5-related premature deaths, as I explained in my June 11, 2015 ICC10 Lecture "EPA's Clean Power Plan and PM2.5-related Co-benefits" (<http://climateconferences.heartland.org/james-enstrom-iccc10-panel-8/>).

Thank you for a professional response to my request.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.

## **NOTES FOR COMMENT LETTER #10**

The following attachment(s) were included with the comment letter submitted by James Enstrom on February 10, 2016 and wer duplicate entries on previous comment letter(s) received:

1. Comment Letter #9 and Attachments

## Response to Comment Letter #10

Submitted by James Enstrom on February 10, 2016

### 10-1

Staff and its expert consultant Industrial Economics, Inc. have fully responded to the Commenter. See letters from IEc dated December 18, 2016 (included as Attachment A to Commenter #7) and January 7, 2016 (included in staff response to Comment 7-1) and staff response to Comment 9-1. In addition, see staff response to Comment Letters Nos. 6-14.

**COMMENT LETTER #11—JAMES ENSTROM EMAIL, MARCH 7, 2016**

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March 7, 2016

IEc President Andrew M. Schwarz  
PM2.5 Elicitation Expert Henry A. Roman  
PM2.5 Pseudoscience Expert George D. Thurston  
SES Pseudoscience Expert Erdak Tekin

Dear Sirs:

In case you have not heard, on Friday, March 4, at 1:30 PM, the new SCAQMD Governing Board fired Executive Officer Barry Russell Wallerstein:  
<http://www.latimes.com/local/lanow/la-me-southern-california-air-board-20160304-story.html>.

11 - 1

Thus, beware of what you submit to the new SCAQMD for the upcoming March 16 STMPR Meeting. PM2.5 and Ozone pseudoscience and SES pseudoscience is NO LONGER going to be tolerated by the 17 million residents of the South Coast Air Basin, an area of the world with almost the lowest age-adjusted total death rate. I strongly encourage you to read everything in the email messages below and the attachment by John D. Dunn, M.D., J.D., who is a leader in the growing effort to eliminate pseudoscientific air pollution regulations from the South Coast Air Basin.

Thank you for your attention to this important message.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)  
(310) 472-4274

## COMMENT LETTER #11—ATTACHMENT A

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**From:** John Dunn [<mailto:jddmdjd@web-access.net>]  
**Sent:** Sunday, March 06, 2016 8:41 PM  
**To:** Undisclosed-Recipient:;  
**Subject:** Fw: March 4 LATimes: SCAQMD Board fired Dictator Wallerstein

People, people,

attached below is my letter to Ms. Shelley, of the [Los Angeles Daily News](#).

I sent her my letter that I wrote and sent to Roman and copied all the South Bay people and Thurston.

You might say, well why—well because I could and I should.

I think I covered it. It's not a Pulitzer prize honker, but it will suffice for Southern CA fights on the air pollution scams at the South Bay—anything more complicated or longer would only be read by some compulsive like Jim Enstrom.

**From:** [John Dunn](#)  
**Sent:** Saturday, March 05, 2016 1:45 PM  
**To:** [Susan Shelley](#) ; [James E. Enstrom](#) ; [Stan Young](#)  
**Subject:** Re: March 4 LATimes: SCAQMD Board fired Dictator Wallerstein

Ms. Shelley,

Attached above is my thorough and well referenced takedown of the latest effort by Wallerstein to gin up an air crisis to justify his new proposed regs. Letter is addressed to Roman, consultant on the project for the South Bay District.

I wrote it timely in an effort to cut off a couple of junk scientists named Thurston and Jerrett, but also the consultant house Wallerstein hired to put together the South Bay scam, lead man Roman.

It all got started when I saw they had dredged up an old Thurston paper and I looked at the abstract—the summary at the front—that admitted they could find no evidence of human health problems from South Bay air pollution, but it goes back to 2010 when Jerrett, from Berkeley admitted at a cage match debate on CARB air pollutin regs, that his research didn't show any deaths from CA air pollution. Then the clown scientist Jerrett “reworks” the project with new models to come up with the “conurbation” scam paper to earn him the CARB appreciation for propping up their house of cards air pollution scare.

Ms. Shelley, I have been fighting lousy CARB and EPA human toxicology epidemiological science for many many years.

This Thurston Wallerstein episode is just another problem created by bad policy and junk science in the service of political agendas. Wallerstein hired Roman to gin up a public relations and political scam to support another round of air regulations to burden business and industry and the public in the South Bay Air District. All of this was to benefit the powermongers at South Bay. staff headquarters. The new Board Members apparently smelled a rat, but the rats have been in charge at South Bay for a long time, head rat John Froines, junk scientist extraordinaire.

I noted when I looked at the paper that Thurston et.al. admitted they found no human death effects, but what's a little lie when in pursuit of a great cause like saving the world. Wallerstein and his staff were deceitful about the critical thing—was another regulation really needed if there was no human health effect measured in the Thurston paper, and Jarrett's earlier research also showed no death effect?

Consider two things, Ms. Shelley, Thurston admitted no death effects in his study, and Wallerstein was ready to promote more burdensome regs in spite of no supportive science.

There's more. The EPA sponsors at UCLA and USC, and 8 other medical schools, human exposure experiments to try to buff up their scientific claims—they expose people, healthy and un healthy, to small particle air pollution, and that is unethical and illegal. They claim small particle air pollution is lethal, toxic, causes cancer, and they expose kids and adults to small particle air pollution. California and US law prohibits human exposure experiments. California adopted the principles of the Nuremberg Code on Human experimentation many years ago, and state universities to exposing people to supposedly lethal and toxic air pollution? Go figure or excuse. Either they are criminals or there are lying about the lethality of small particles when they tell the Congress small particles in the air kill more than 300,000 people in America every year.

I wrote the above attached letter to point out the problem to those interested. The letter has evidence of the scam. Wallerstein knew what I know—air pollution in the South Bay is not killing anyone. The whole scam is bullshit perpetrated by environmental fanatics who want to control things claiming they are saving people and the planet.

Nonsense. They are self serving scam artists.

Who knows, maybe some people read it.

Happy to talk to you anytime. numbers below.

John Dale Dunn MD JD  
Consultant Emergency Services/Peer Review  
Civilian Faculty, Emergency Medicine Residency  
Carl R. Darnall Army Med Center



Fort Hood, Texas  
Medical Officer, Sheriff Bobby Grubbs  
Brown County, Texas  
325 784 6697 (h) 642 5073 (c)

**From:** [Susan Shelley](#)  
**Sent:** Friday, March 04, 2016 7:29 PM  
**To:** [James E. Enstrom](#) ; [Stan Young](#) ; [John D Dunn, MD, JD](#)  
**Subject:** Re: March 4 LATimes: SCAQMD Board fired Dictator Wallerstein

I'd appreciate any on-the-record comments about Wallerstein's performance in the job and specific actions he took that were unjustified or unreasonable. A quick survey of today's Southern California news coverage of his firing shows only one side of the story, and I think readers deserve to know more.

Thanks,

Susan Shelley

Columnist, Los Angeles Daily News and Los Angeles News Group

On March 4, 2016 at 4:40 PM "James E. Enstrom" <[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)> wrote:

March 4, a day to celebrate: SCAQMD Board fired Dictator Wallerstein at 1:30 PM today. Wallerstein was the number two regulator in California, behind Mary Nichols. There is now Hope for major regulatory reform in Southern California, particularly regarding the 2016 air quality management plan. There will be upcoming opportunities to submit public comments. Please spread the word.

<http://www.latimes.com/local/lanow/la-me-southern-california-air-board-20160304-story.html>

Sent from my iPhone

## **NOTES FOR COMMENT LETTER #11**

The following attachment(s) were included with the comment letter submitted by James Enstrom on March 7, 2016 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #5 and Attachments

## Response to Comment Letter #11

Submitted by James Enstrom on March 7, 2016

### 11-1

SCAQMD denies all allegations that it has relied upon “pseudo-science.” Thousands of staff hours have gone into the analysis and preparation of the socioeconomic analysis. Moreover, the public health benefits analysis relied on the most recent relevant literature, used a widely adopted and appropriate method, and included the best available data and information. The analysis has also been reviewed through a rigorous public process, including discussion at multiple Scientific, Technical and Modeling Peer Review Advisory Group meetings, AQMP Advisory Group meetings, and the 2016 AQMP Regional Workshops and Hearings. Therefore, staff considers the analysis to be appropriate and based on current best practices in field.

Commenter’s core claim that exposure to PM2.5 and ozone has no relationship to total mortality in the Basin lacks merit. See staff response to Comment 12-1 and the December 18, 2016 response by Industrial Economics, Inc. to the Commenter (the latter was included as Attachment A to Comment Letter #7). Moreover, as health outcomes are influenced by many factors ranging from genetic to environmental, the lower age-adjusted total death rate in the region does not automatically imply that the environmental factor of air pollution has no effect on mortality risks for the residents of this region.

The referenced letter from Dr. John Dunn was submitted to IEC on January 23, 2016 and is included as Comment Letter #5.

**COMMENT LETTER #12—JAMES ENSTROM EMAIL, JULY 26, 2016**

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July 26, 2016

Anthony Oliver, Ph.D.  
SCAQMD Air Quality Specialist  
[aoliver@aqmd.gov](mailto:aoliver@aqmd.gov)

Dear Dr. Oliver,

I am an environmental epidemiologist and physicist who has had a long career at UCLA and I am an expert in the health effects of air pollution in California. I am writing regarding your planned presentation “Item #3: [Preliminary Public Health Benefits of the Draft 2016 AQMP](#)” at the July 28, 2016 SCAQMD Scientific, Technical & Modeling Peer Review Advisory Group (STMPR) Socioeconomic Meeting ([http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=STMPRSocio\\_072816](http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=STMPRSocio_072816)). I challenge the validity of your “Preliminary Health Impacts – Mortality” and your selective use of Jerrett 2005, Jerrett 2009, and Jerrett 2013.

Key aspects of my prior criticism of SCAQMD STMPR claims regarding the health impacts of PM2.5 and ozone in the South Coast Air Basin (SCAB) are contained in these three documents:

- 12 - 1
- November 16, 2015 Enstrom Email to Cassmassi and SMTPR Staff re Ozone and PM in SCAB (<http://www.scientificintegrityinstitute.org/Cassmassi111615.pdf>)
  - November 22, 2015 Enstrom Table with 2000-2015 Results Showing NO PM2.5 Premature Deaths in CA (<http://www.scientificintegrityinstitute.org/NoPMDeaths112215.pdf>)
  - December 15, 2015 Enstrom Email to Roman Requesting NO IEc PM2.5 and Ozone Deaths for 2016 AQMP (<http://www.scientificintegrityinstitute.org/Roman121515.pdf>)

- 12 - 2
- I strongly recommend that you carefully read all three documents, as well as all the weblinks that they contain. Then I strongly recommend that you discuss these documents with me, as well as with SCAQMD Health Effects Officer Jo Kay Chan Ghosh and IEc Principal Henry A. Roman. Finally, I strongly recommend that you announce during your presentation that several highly qualified doctoral-level scientists, including myself, are challenging the validity of your presentation, particularly your claims of “Premature Mortalities” in the SCAB.

Thank you very much for your attention to this important matter.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)

(310) 472-4274

cc: Jo Kay Chan Ghosh <[jghosh@aqmd.gov](mailto:jghosh@aqmd.gov)>  
Henry A. Roman <[har@indecon.com](mailto:har@indecon.com)>  
George D. Thurston <[George.Thurston@nyumc.org](mailto:George.Thurston@nyumc.org)>  
Elaine Shen <[eshen@aqmd.gov](mailto:eshen@aqmd.gov)>  
Philip M. Fine <[pfine@aqmd.gov](mailto:pfine@aqmd.gov)>  
Wayne Nastri <[wnastri@aqmd.gov](mailto:wnastri@aqmd.gov)>

## Response to Comment Letter #12

Submitted by James Enstrom on July 26, 2016

### Preface

Staff responses to Dr. James Enstrom's comments that were previously sent to Industrial Economics, Inc. are provided here as this is the first comment letter submitted by Dr. Enstrom directly to the SCAQMD staff regarding the Socioeconomic Report.

### 12-1

The U.S. EPA is tasked with assessing new and emerging air quality science, including health studies, as part of the process of setting the federal air quality standards. In other words, the U.S. EPA's role is to assess the causal relationships between the pollutants and the different types of health endpoints. It is then SCAQMD's role to describe the public health impacts of poor air quality in our region, as well as to develop and implement an emission reduction strategy to attain the federal and state ambient air quality standards. The Draft Final 2016 AQMP and its related documents summarize the health effects and causal determinations as assessed by U.S. EPA and other scientific agencies, to discuss some recent studies published since the latest U.S. EPA reviews, to give some quantitative estimates of the health impacts of particulate matter air pollution in the South Coast Air Basin, and to present a "local perspective" by highlighting studies conducted in the South Coast Air Basin, Southern California, or California.

The Socioeconomic Report provides an analysis of the socioeconomic impacts of the 2016 AQMP in order to further inform public discussions and the decision-making process associated with the adoption of the 2016 AQMP. However, the SCAQMD is legally required to adopt a plan to attain the National Ambient Air Quality Standards. The legal requirements for the AQMP are described in Chapter 1 of the Draft Final 2016 AQMP.

Similar comments from the Commenter were previously submitted to U.S. EPA and CARB regarding their public documents that contain health effects discussion and/or analysis. Both agencies have provided published responses and stated their disagreements with the claims made in those comments. The U.S. EPA described in its Response to Comments on the 2012 PM Rule how the scientific literature across disciplines supported its causal determination:<sup>1</sup>

*[...] in the broader evaluation of the evidence from many epidemiological studies, and subsequently during the process of forming causality determinations, the EPA has emphasized the pattern of results across epidemiological studies for drawing conclusions on the relationship between PM<sub>2.5</sub> and health outcomes, and whether the effects observed are coherent across the scientific disciplines. Thus, in making causality determinations, the EPA did not limit its focus or consideration to just studies that reported positive associations or where the results were statistically significant.*

<sup>1</sup> Response to Significant Comments on the 2012 Proposed Rule on the National Ambient Air Quality Standards for Particulate Matter. June 29, 2012. <https://www3.epa.gov/ttn/naaqs/standards/pm/data/20121214rtc.pdf>

CARB, during its 2010 rulemaking process, also explained how the bulk of the scientific literature supports the finding of a causal relationship between PM and mortality and notes the strength of the Krewski et al. (2009) study, which was also used in the Draft Final Socioeconomic Report for the 2016 AQMP:<sup>2</sup>

*We have carefully reviewed all studies that have been performed in the United States on the relationship between long-term PM2.5 exposure and mortality, as has the U.S. EPA in its recent review of the NAAQS for particulate matter. There are a few studies that do not find a relationship between long-term PM2.5 exposure and all-cause mortality, but the majority of studies do report a statistically significant relationship. In addition, U.S. EPA and we have also critically evaluated the methods used in each study so that we can place the most weight on the studies that have used the strongest methodologies. The effect estimate we have used from Krewski et al. (2009) comes from the largest and most rigorously and publically evaluated study in existence. The effect estimate for the relationship between long-term PM2.5 exposure and mortality from this study is being used by multiple agencies worldwide. The Krewski et al. (2009) estimate, though not the lowest in the literature, is toward the lower end of the range of results from American studies.*

As described in Chapter 3 of the Draft Final Socioeconomic Report, SCAQMD staff has worked closely with Industrial Economics Inc. (IEc), our expert consultant, and its scientific advisors to provide an updated health benefits literature review and fine-tune the methodology used to quantify public health benefits and address the associated uncertainties in estimates. The Concentration-Response (C-R) functions chosen for quantification of health impacts were determined based on a systematic review of the epidemiological literature, where studies were evaluated for quality and applicability according to numerous criteria (the IEc reports are available on the SCAQMD website at <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/socioeconomic-analysis>). These criteria included: peer-review, date of the study, geography and population characteristics, and study design. Thus, the C-R functions applied in this analysis were found from recent, peer-reviewed articles, derived from local studies of the Basin or studies that report separate estimates using sub-samples pertaining to the Basin, where feasible. Studies that were not recommended for quantification of health impacts were those that did not meet all review criteria as determined by the expert consultant.

These study selection criteria and IEc's draft findings and recommendations regarding both C-R and benefits valuation functions were all discussed and reviewed at multiple meetings of the 2016 AQMP Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group, which were open to public participation with advanced meeting notices electronically mailed to all 2016 AQMP interested parties. Moreover, as IEc stated in their December 18, 2015 response to the Commenter (included as Attachment A to Commenter Letter #7), the Commenter has a different interpretation of the air pollution health effects literature than the one presented in IEc's review, and IEc declined the Commenter's request to amend their report to state "that PM2.5 and ozone have NO relationship to total mortality in the SCAB or

<sup>2</sup> Final Statement of Reasons for Rulemaking for On-Road Diesel Vehicles. December, 2010  
<https://www.arb.ca.gov/regact/2010/truckbus10/tbfsor.pdf>

California,” a review that was cited in several other comment letters based on the same source of information.

Staff acknowledges that, as with all scientific studies and evaluations, there are various sources of uncertainty surrounding the estimated public health benefits. Staff provided information of this uncertainty in Chapter 3 of the Draft Final Socioeconomic Report. First, staff noted that health impacts shown in Table 3-3 of the Draft Final Socioeconomic Report represent the point estimate of sampling distributions of the estimates; the 95 percent confidence intervals of these distributions are included in Appendix 3-B to quantify uncertainty associated with the estimated health impacts. In addition, staff conducted several sensitivity and uncertainty analyses as they relate to important assumptions in the quantification of public health benefits and found that the results continue to demonstrate the significant contribution of cleaner air to public health improvements.

The methodology used for quantification of health impacts reflects the current best practices in the field, using U.S. EPA’s BenMAP-CE Tool. The operations of the BenMAP-CE by SCAQMD staff for estimating public health benefits in this report were reviewed by Dr. Jin Huang, a former project manager for the 2014 Abt review (2014) and the STMPR expert on BenMAP analysis. The operations were found to be appropriate as described in Appendix 3-C.

In summary, the public health benefits analysis relied on the most recent relevant literature, used a widely adopted and appropriate method, and included the best available data and information. The analysis has also been reviewed through a rigorous public process, including discussion at multiple STMPR meetings, AQMP Advisory Group meetings, and the 2016 AQMP Regional Workshops and Hearings. Therefore, staff considers the analysis to be appropriate and based on current best practices in field.

Staff is supportive of continuous research on the health effects of air pollution and welcomes suggestions and references for the latest findings in the epidemiological, health economics, or other related scientific literature. However, it should be reiterated that it is not the SCAQMD’s role to make causal determinations between air pollutants and various health effects.

## 12-2

The receipts of this letter and another letter submitted by Dr. Stanley Young (included as Comment Letter #5 on Appendix I of the Draft Final 2016 AQMP) were acknowledged and the comments summarized at the July 28, 2016 STMPR meeting (see meeting minutes: [http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/July\\_2016/stmpr\\_socmin\\_072816.pdf](http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/July_2016/stmpr_socmin_072816.pdf)).



**COMMENT LETTER #13—HAND DELIVERED BY ARTHUR KRUGLER, July 28, 2016**

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Statement to SCAQMD STMPR re 2016 AQMP Socioeconomic Analysis

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
jenstrom@ucla.edu

July 28, 2016

I am an environmental epidemiologist and physicist who has had a long career at UCLA and I am an expert on the health effects of air pollution in California. I strongly challenge the scientific validity of Dr. Oliver's "Preliminary Public Health Benefits of Draft 2016 AQMP". Specific criticism of his presentation is contained in my attached July 26 email message. I have repeatedly submitted my criticism to AQMD staff and STMPR experts since November 2015. Key aspects of this criticism are contained in my attached July 19 presentation to the Southern California Business Coalition.

For instance, Dr. Oliver's "Preliminary Health Benefits-Mortality and Morbidity" claims that the 2023 Midpoint Health Benefits are \$26.8 Billion for Mortality and \$0.1 Billion for Morbidity. Alleged PM2.5 premature deaths represent 97% (\$26.1 Billion) of the Total Health Benefits (\$26.9 Billion). However, overwhelming evidence, including two major AQMD-funded studies, shows there are NO premature deaths in California due to PM2.5 or Ozone. Without the alleged Mortality Benefits, the Preliminary Health Benefits (\$0.1 Billion) are far lower than the Preliminary Average Annual Cost of the 2016 AQMP of \$2.5 Billion, as stated by Dr. Dabirian.

Instead of focusing on alleged premature deaths due to air pollution, AQMD must explain that the South Coast Air Basin is one of the healthiest areas in the United States. It has an annual age-adjusted total death rate that is lower than the death in every state except Hawaii and it has similarly low death rates for all cancer and all respiratory diseases. The next version of Draft 2016 AQMP must properly incorporate all of the valid criticism that AQMD receives. Thank you.

13 - 1

Presentation to Southern California Business Coalition on SCAQMD and 2016 AQMP

**“AQMD Must Reassess Its Air Quality Regulations”**

James E. Enstrom, Ph.D., M.P.H.  
UCLA and Scientific Integrity Institute  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)

July 19, 2016

The South Coast Air Quality Management District (AQMD), one of the most powerful regulatory agencies in the United States, has just proposed tightening its regulations. During the past 40 years it has implemented strong air quality regulations in the 11,000 square-mile South Coast Air Basin (SCAB), which includes the 17 million people who live in the populated areas of Los Angeles, Orange, Riverside, and San Bernardino counties. These increasingly aggressive and costly regulations have impacted all sectors of the economy, from utility power plants, oil refineries, the ports, and all manufacturers to restaurants, dry cleaners, printers, and auto repair shops. While these regulations have improved air quality substantially, they have been excessive and have contributed to the loss of more than half of the manufacturing jobs in Southern California.

The regulation of fine particulate matter (PM<sub>2.5</sub>), ozone (O<sub>3</sub>), and nitrogen oxides (NO<sub>x</sub>) has been largely justified on a cost-benefit basis by the claim that air pollution causes 5,000 premature deaths per year in the SCAB. This claim relies on the implausible and unproven hypothesis that inhalation over a lifetime of about one teaspoon of PM<sub>2.5</sub> (particles less than 2.5 microns in diameter) causes premature death. For perspective, inhaling this amount of PM<sub>2.5</sub> is roughly equivalent to smoking two cigarettes a year, certainly not a lethal dose. Moreover, there is overwhelming epidemiological evidence, including two large 2011 AQMD-funded epidemiological studies, that air pollution does not cause any premature deaths in California. Furthermore, the SCAB has an age-adjusted total death rate that is lower than the death rate in every state except Hawaii. It has a similarly low total cancer death rate.

Regarding exposures, the average ambient levels of 8-hour ozone and 24-hour PM<sub>2.5</sub> in the SCAB, as measured by AQMD monitors, are below the current Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS) for ozone and PM<sub>2.5</sub>. Furthermore, the average personal exposures to ozone and PM<sub>2.5</sub> among SCAB residents are much lower than the ambient levels measured by AQMD monitors. These average personal exposure levels are far below the levels associated with adverse health effects. Air pollutants are now at record low levels and close to natural background levels. The last Stage 3 smog alert was in 1974 and the last Stage 2 smog alert was in 1988. Much of the remaining SCAB pollution comes across the Pacific Ocean from China, which ignores air pollution regulations and which does much of the manufacturing that used to be done here.

Unfortunately, the AQMD staff, led since 1997 by Executive Officer Barry R. Wallerstein, has ignored the extremely positive air quality evidence above. Instead of acting in the best public health and socioeconomic interest of the SCAB residents, AQMD staff has implemented scientifically unjustified regulations in conjunction with the EPA, the California Air Resources Board, and powerful environmental activist groups (like Coalition for Clean Air, American Lung Association, Natural Resources Defense Council, and Sierra Club). The AQMD Board justifiably fired Wallerstein on March 4. There is now an opportunity for the remaining AQMD staff to work with numerous qualified experts like myself in order to reassess the scientific validity of all their regulations. The REgional CLean Air Incentives Market (RECLAIM), the Multiple Air Toxics Exposure Study (MATES), and the 2012 Air Quality Management Plan (AQMP) all need to be reassessed. These reassessments must be made before the 2016 AQMP is finalized and, if they are not made, the AQMD Board should not approve the 2016 AQMP. It is time to stop unjustified regulations in Southern California and to bring manufacturing jobs back.

### **NOTES FOR COMMENT LETTER #13**

The following attachments(s) were included with the comment letter submitted by James Enstrom on July 28, 2016 and were duplicate entries on previous comment letter(s) received:

1. Attachment A to Comment Letter #9

## Response to Comment Letter #13

Submitted by James Enstrom on July 28, 2016

### 13-1

See staff response to Comment 12-1. As health outcomes are influenced by many factors ranging from genetic to environmental, the lower age-adjusted total death rate in the region does not automatically imply that the environmental factor of air pollution has no effect on mortality risks for the residents of this region.

**COMMENT LETTER #14—JAMES ENSTROM EMAIL, SEPTEMBER 6, 2016**

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September 6, 2016

Dear Dr. Oliver,

14 - 1

Thank you for your very professional response to my verbal request. My attached January 11, 2016 comments, which include my December 15, 2015 and November 16, 2015 comments, regarding the then forthcoming 2016 AQMP Socioeconomic Report were NOT addressed in the August 31, 2016 Draft Socioeconomic Report. These comments were copied to Drs. Shen, Dabirian, Ghosh, Fine, and many others at SCAQMD. I am now sending them to you because I believe that you were not at SCAQMD in January. Also, I will submit these comments, as well as my subsequent comments, to the online comment form shown below. Please confirm that you have received my attached comments. Also, please let me know if Drs. Shen, Dabirian, Ghosh, or Fine ever showed these comments to you.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.

## **NOTES FOR COMMENT LETTER #14**

The following attachments(s) were included with the comment letter submitted by James Enstrom on September 6, 2016 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #9 and Attachments

## Response to Comment Letter #14

Submitted by James Enstrom on September 6, 2016

14-1

Staff has received all comment letters referenced by the Commenter. They are included in this document with appropriate staff responses.

**COMMENT LETTER # 15—STEVE MILLOY EMAIL, AUGUST 10, 2016**

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August 10, 2016

Anthony Oliver, PhD  
CSAQMD Air Quality Specialist

Dear Dr. Oliver,

15 - 1

I am a biostatistician, researcher and lawyer who has a great deal of experience with air quality issues.

I am submitting the attached comments concerning the Preliminary Public Health Benefits of the Draft 2016 AQMP.

The attachment explains why there is no scientifically established link between outdoor PM2.5 and premature mortality.

Hence, there can be no benefits associated with avoided mortality due to further reductions in ambient PM2.5 levels.

I am happy to discuss this with you further or otherwise participate in the regulatory decision-making process.

Thank you for your attention.

Steve Milloy  
Publisher, JunkScience.com  
Senior Legal Fellow, Energy & Environment Legal Institute  
12309 Briarbush Lane  
Potomac, MD 20854  
Office: 301.258.9320



**NOTES FOR COMMENT LETTER #15**

The attached comment letter is identical to Comment Letter #8 in Responses to Comments on the Draft 2016 AQMP.

## Response to Comment Letter #15

Submitted by Steve Milloy on August 10, 2016

15-1

See staff response to Comment 12-1 and Response to Comment 8-1 on the Draft 2016 AQMP (available at: <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/response-to-comments/2016-aqmp-rtc-2-of-4.pdf>).

## COMMENT #16—DANIEL NEBERT EMAIL, AUGUST 13, 2016

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**Daniel W Nebert, MD**, Professor  
Department of Environmental Health  
College of Medicine  
University of Cincinnati Medical Center  
P. O. Box 670056  
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Phone 503-694-8482  
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[dan.nebert@uc.edu](mailto:dan.nebert@uc.edu)

13 August 2016

Anthony Oliver, PhD [aoliver@aqmd.gov](mailto:aoliver@aqmd.gov)  
SCAQMD Air Quality Specialist

Dear Dr. Oliver and All Others Concerned:

I have been asked by Professor James E. Enstrom (UCLA) to express my opinion to you-all concerning “particulate matter of the size 2.5 micrometers in diameter (**PM2.5**) as being “*unequivocally the direct cause* of at least 2,100 deaths per year in Southern California”.

16 - 1

By way of introduction, I am author/coauthor of more than 650 peer-reviewed scientific publications and among the “640 most-cited authors of all time” by my peers—as determined by **Google Scholar** parameters. My fields of research interest as a physician-scientist include genetics, comparative and evolutionary genomics, gene nomenclature, drug metabolism, pharmacogenetics, adverse drug reactions, personalized medicine, environmental contaminants and disease, pediatrics, developmental biology, teratogenesis, neurobiology, endocrinology and cancer. I am board-qualified in both California and Ohio in the practice of medicine and have been Principal Investigator (PI) on numerous basic science and clinical research projects, some of which are still in preparation for publication. At the University of Cincinnati, I was Founder of the **Center for Environmental Genetics** (1992-98), which is still going strong today in its 25th year (current PI is Professor Shuk-mei Ho); I continue to participate in CEG’s Community Outreach and Education Program (COEP) directed by Dr. Erin Haynes. I also have spearheaded the worldwide standardized nomenclature system (based in London) for all genes and gene families in all living organisms.

16 - 2

Particulate matter has been studied extensively—by many scientists, including by one of the leaders in this field, **Joel Schwartz**, who applied longitudinal data analysis to environmental health. There was a controversy about his work on PM10 and mortality; these findings were therefore re-analyzed twice by the Health Effects Institute (funded 50% from the US EPA and 50% from automotive manufacturers). Whereas the magnitude of the effect was somewhat diminished on this re-analysis, “a small effect” was still seen, although statistically not significant [ <http://pubs.healtheffects.org/getfile.php?u=21> ]. Most disturbingly, the variability among and between studies was very substantial. Explanations for this variability were suggested to include “the degree of temporal smoothing used in the original analyses, number of smoothed terms in the models, and degree of nonlinear collinearity (concurvity) among the smoothed terms.” The relative importance of these and other explanations remains highly equivocal.

**Joel Schwartz** also used these methods to examine the relationship of PM2.5 with mortality. He and others have estimated an association to be “a ~10% increase in mortality for every 10  $\mu\text{g}/\text{meter}^3$ —above (but not below) 10  $\mu\text{g}/\text{meter}^3$ . At 20  $\mu\text{g}/\text{meter}^3$ , it was possible to measure a slight increase in mortality in a study of 10,000 deaths. However, at levels in the range of 10–15  $\mu\text{g}/\text{meter}^3$ , the study would require a very large cohort in order to gain sufficient statistical power to detect “an unequivocal effect”.

An equal opportunity/affirmative action institution

16 - 3

The PM2.5 relationship was assessed considerably before the 21st century, when several cities (e.g. Allegheny County, Pittsburgh) suffered from levels above 20  $\mu\text{g}/\text{meter}^3$ . **However, these levels of air pollution no longer exist, anywhere in the United States today.** This is mainly because many of the antiquated power plants have been converted to natural gas or have shut down. Thus, I do not believe that particulate matter air pollution is a major problem any longer in this country—although it remains a challenge in certain cities of China and India.

In conclusion, existing evidence on “the relationship between PM2.5 and total mortality in California” (and indeed, nationally) is **absolutely underwhelming** for SCAQMD to claim that “PM2.5 causes 2,100+ deaths per year in the South Coast Air Basin”. It is categorically unethical to use that claim as the primary public health justification for a 2016 Air Quality Management Plan that **imposes a burden of \$38.2 billion in additional compliance costs** on the Southern California taxpayers and their economy.

This is yet-another glaring example of “public policy being pushed forward—despite any solid scientific evidence supporting the proposed policy.” As a physician-scientist who is proud of scientific integrity in all his published research for more than five decades, I find this behavior despicable and I denounce it. I urge you to take these comments seriously.

Sincerely,



Daniel W Nebert, BA [biochem], MS [biophys], MD [pediatrics], Professor Emeritus  
Department of Environmental Medicine and Center for Environmental Genetics  
University of Cincinnati College of Medicine, Cincinnati, OH 45267  
Department of Pediatrics & Molecular Developmental Biology, Division of Human Genetics  
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cc:

Jo Kay Chan Ghosh [jghosh@aqmd.gov](mailto:jghosh@aqmd.gov)  
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Eula Bingham, Professor Emeritus, Undersecretary-of-Labor, 1977-81 [eula.bingham@uc.edu](mailto:eula.bingham@uc.edu)



## Responses to Comment Letter #16

Submitted by Daniel Nebert on August 13, 2016

### 16-1

The public health analysis quantifies the effect of reduced PM2.5 concentrations in the South Coast Air Basin on reduced mortality risk which, when aggregated across the affected population, is often expressed as the number of premature deaths avoided. Additionally, staff did not only consider one study but took into account the variance in different estimates by pooling estimates from four local studies (for more information see Appendix 3-B of the Draft Final Socioeconomic Report). Staff presented the point estimates of these results in Chapter 3 of the report, but noted that these represent the point estimate of a sampling distribution and included the 95-percent confidence interval of the distribution for every endpoint estimated in Appendix 3-B of the report.

As with all scientific studies and evaluations, there are various sources of uncertainty surrounding the estimated public health benefits. Staff therefore conducted sensitivity and uncertainty analysis as they relate to important assumptions in the analysis and found that the results continue to demonstrate the significant contribution of cleaner air to public health improvements.

Therefore, contrary to the Commenter's claim, the public health benefits analysis performed in the preliminary, draft, and draft final versions of the Socioeconomic Report of the 2016 AQMP do not state that PM2.5 exposure is "*unequivocally the direct cause* of at least 2,100 deaths per year in Southern California."

### 16-2

See staff response to Comment 12-1.

### 16-3

The Commenter's opinions and claims are expressed without evidence. The U.S. EPA's Integrated Science Assessment (2009) and the numerous prominent peer-reviewed articles providing evidence that such a relationship exists, even at very low levels of PM2.5 concentrations.

The analysis of public health benefits associated with implementing the Draft Final 2016 AQMP was conducted for informational purposes. The legal requirements for the AQMP are described in Chapter 1 of the Draft Final 2016 AQMP.

Commenter's claims of impropriety by SCAQMD lack merit. Compliance with the law, transparency, and integrity are demanded of the SCAQMD and its staff. As mentioned in staff response to Comment 12-1, the public health benefits analysis relied on the most recent relevant literature, used a widely adopted and appropriate method, and included the best available data and information. It has also gone through a rigorous public process being discussed at multiple STMPR meetings, AQMP Advisory Group meetings, and the 2016 AQMP Regional Workshops and Hearings. Therefore, staff considers the analysis to be appropriate and based on current best practices in field.

**COMMENT LETTER #17—STAN YOUNG EMAIL, SEPTEMBER 6, 2016**

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Dear Anthony Oliver:

**17 - 1**

I find no association of acute mortality with either PM2.5 or ozone in the South Coast Air Basin. Literature supports no chronic association in all of California.

I am willing to work with others on analysis of the data set that I have. The mortality data is from a public source.

It seems premature to increase regulations in the air basin until the mortality question is resolved/agreed upon.

Stan

### **NOTES FOR COMMENT LETTER #17**

The following attachment(s) were included with the comment letter submitted by Stanley Young on September 6, 2016 and were duplicate entries on previous comment letter(s) received:

1. Comment Letter #4: Attachment A
2. See the attachments to Comment Letter #23 on Appendix I of the Draft Final 2016 AQMP.

## Response to Comment Letter #17

Submitted by Stanley Young on September 6, 2016

### 17-1

See staff responses to Comments 4-1 and 12-1. The Commenter's opinions and claims are expressed without evidence. The U.S. EPA's Integrated Science Assessment (2009) and the numerous prominent peer-reviewed articles providing evidence that such a relationship exists, even at very low levels of PM2.5 concentrations.

The analysis of public health benefits associated with implementing the Draft Final 2016 AQMP was conducted for informational purposes. The legal requirements for the AQMP are described in Chapter 1 of the Draft Final 2016 AQMP.



**COMMENT LETTER #18—MICHAEL SALMAN EMAIL, AUGUST 18, 2016**

---

2533 4th Ave  
Los Angeles, CA 90018  
salman@history.ucla.edu  
323-402-0840  
August 18, 2016

Ms. Elaine Shen,  
Program Supervisor  
Socioeconomic Analysis  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Subject: Comments on Socioeconomic Study Appendix 2A on CMB-03, especially as concerns oil and gas production flaring.

Dear M. Shen

Thank you for this opportunity to send comments on the draft Socioeconomic Study for the 2016 AQMP.

I am writing to comment on the treatment of CMB-03 on “Non-Refinery Flares” contained in Appendix 2-A, pages 56 to 58, especially as concerns oil and gas production flaring.

18 - 1

The discussion of CMB-03 in Appendix 2-A begins by mentioning that beneficial use is the preferred control measure, but then the treatment of the matter examines only low NOx flares, which are not the preferred control method.

Flares, of course, are not eligible for any incentives. Nor should they be eligible, especially at oil well sites since CAL EPA Secretary Rodriguez’s commitment to the World Bank’s Zero Routine Flaring Initiative in December 2015 makes the elimination of routine flaring by 2030 into a goal for the State to achieve. Indeed, the commitment should preclude the approval of new flares and diligent movement towards the elimination of existing flares installed for routine use.

18 - 2

But beneficial use technologies are eligible for incentives, and the SCAQMD strategy of achieving emissions reductions through the use of incentives rather than regulatory prohibition makes it imperative that incentives be identified, promoted, and increased.

There are multiple beneficial use technologies that can be used as control mechanisms ultra-low or near zero emissions, including fuel cells, microturbines<sup>1</sup>, gas-to-liquids platforms (GTL), and reformation of

<sup>1</sup> In July 2016 the CPUC revised the SGIP to require increasing admixture t of “renewable” gas (i.e., biogas) with natural gas used in fuel cells or microturbines eligible for SGIP incentives. This is a policy issue which needs to be addressed. CPUC used to have a category for waste gas, but they eliminated it years ago. Gas that is flared is not pipeline gas, but CPUC is treating it as if it is. Part of the problem is the vestigial term “renewable,” which dates

gas into hydrogen among other possibilities. By these means the gas that would be flared can be converted into electricity and/or hydrogen and/or liquid fuels. These are by no means the only alternatives to flaring, and all would have lower criteria pollutant emissions than flaring and would lower GHG emissions.

There are existing incentives that can be tapped for all of these beneficial use technologies. Some of the existing incentives include the 30% Federal tax credit for fuel cells, SGIP for fuel cells and microturbines<sup>1</sup>, and possible support from the CEC, AQMD and other agencies for beneficial use technologies that can produce hydrogen. Fuel cells, GTL, and reformation of gas can produce hydrogen. Companies such as Toyota are helping to finance the build out of hydrogen fuel infrastructure and thus might also support an effort to convert waste gas destined for flares into hydrogen.

SoCalGas is being required to fund GHG reduction projects to offset emissions from the Aliso Canyon leak, so they are another company that might assist in beneficial use projects, especially since such projects would meet the criteria of reducing emissions in SoCalGas's service area, helping to solve energy problems, and often would entail supporting improvements in underserved communities. In addition, in 2015 SoCalGas received a Tariff from the CPUC that allows SoCalGas to operate distributed generation equipment on site for commercial or industrial firms. Under this Tariff, SoCalGas can pay the capital expenses and operating expenses, and then turn over the produced power to the contracting company in exchange for payments scheduled over 10 years (or possibly longer, if information I have been given is correct).

Moreover, incentives for the beneficial use of flare gas should be increasing because both the State of California and the U.S. Federal Government have signed onto the World Bank's Zero Routine Flaring Initiative. I understand that the socioeconomic modeling cannot calculate costs based on incentives that do not exist yet, and that is not what I am suggesting. Instead, I think SCAQMD's preference for emissions reductions through incentives makes it more important that incentives should be discussed so as to add SCAQMD's weight to discussions at the State and Federal level about expanding incentives to replace flaring with beneficial use.

Finally, beneficial use technologies produce revenue and usable fuels or energy, while flares produce nothing but emissions. For this reason a 2008 study commissioned by the CEC – "The Off-Gases Project" – recommended policy changes to support the use of microturbines with heat recovery at well sites in place of flares and gas-fired processing equipment, and it argued that microturbine use would be economically beneficial because well sites use large quantities of electricity. Since then improvements in fuel cells and mini GTL platforms have made these options even more attractive from a revenue point of view, and the emergence of hydrogen fuel vehicles makes these options (and also reformation of gas into hydrogen) even more attractive, both in terms of revenues and total emissions reduction.

back to the 1973 oil crisis and ensuing fears of oil shortages. The focus today should be on lowering emissions (GHGs, Criteria Pollutants, etc) rather than renewability.

18 - 2

(CONT'D)

18 - 3

**18 - 4** [ In sum, the prioritized control measure – beneficial use – should be considered in the socioeconomic analysis, and when it is considered the costs should be offset by available incentives and revenue. The AQMP overall should highlight the revenue gains of beneficial use and the available incentives. If SCAQMD is going to emphasize emission reductions via incentives (rather than prohibitions), then SCAQMD should work to increase incentives that are available for beneficial use.

**18 - 5** [ One more small point: The low NOx flare that is identified for the sake of cost modeling was the “Bekaert Flare.” Bekaert was purchased by Aereon Flare Industries in 2012 and the CEB line of flares has been marketed under the Aereon name since then.

Yours

Michael Salman

## Responses to Comment Letter #18

Submitted by Michael Salman on August 18, 2016

### 18-1

Staff acknowledges that the preferred method of control for CMB-03 is beneficial use; however, staff also acknowledges that there may be different technology options and challenges for different source categories. Different approaches may be necessary for different source categories, although the overall goal of reducing NOx and other emissions from non-refinery flares will remain. The cost analysis was based on the possibility that the gas may not be cleaned to be used as a transportation fuel, injected into a pipeline, or directed to equipment that can be converted to power and/or heat and; therefore, will need to install a newer Best Available Control Technology (BACT)-compliant flare to achieve lower NOx emissions. As noted in the control measure, the Zero Routine Flaring by 2030 initiative being undertaken by the World Bank (for oil and gas facilities) will be taken into consideration during rule development. Staff will be pursuing paths to reduce routine flaring at oil and gas facilities and require any flaring that does occur to have the lowest emission limits feasible. While flares would not be eligible for incentives, the beneficial use-related projects such as biogas cleanup and pipeline infrastructure will be eligible for the incentive program.

### 18-2

Staff thanks the commenter for identifying multiple possible sources of incentive funding. Staff will explore all options for incentive funding. Staff is currently exploring options for using GHG reduction funds for the beneficial use projects.

Incentives for beneficial use are preferred and would be implemented through control measure CMB-01 for biogas cleanup or implementation of pipeline infrastructure. Public working groups or workshops will take place to discuss the guidelines and incentives, including fund distribution.

Staff also appreciates the description of the multiple available/potential technologies noted by the commenter. Once a working group is established, a more detailed discussion on the different methods or alternatives to flaring waste gas from each source category will be determined and addressed.

Please see the Draft Socioeconomic Report Appendix 2-A-8 for a more updated version of the cost and incentive analyses.

### 18-3

Please see Response to Comment 18-2 regarding a working group. CMB-03 will require conditioning or cleaning of gas to be used in transportation fuel, pipeline injection, or for conversion to power and/or heat. If all these options are infeasible, the installation of newer flares implementing the best available control technology will be required.

### 18-4

Please see Response to Comment 18-1 and 18-2 regarding cost analysis and incentives, respectively. In addition, please see the Draft Socioeconomic Report Appendix 2-A-8 for a more updated version of the cost and incentive analyses.

18-5

Staff has revised Appendix 2-A in the preliminary Socioeconomic Report. In the revised report, staff does not specify the manufacturer name for the clean enclosed burner (CEB) flare. Any flaring that does occur will have to have the lowest limits feasible. Please see the Draft Socioeconomic Report Appendix 2-A-8 for more details.



Western States Petroleum Association

Credible Solutions • Responsive Service • Since 1907

Sue Gornick

Manager, Southern California Region

31 October 2016

Dr. Philip Fine via email: PFine@aqmd.gov  
Deputy Executive Officer  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

**Re: Comments on the Preliminary Draft Socioeconomic Report for the  
2016 Air Quality Management Plan (AQMP)**

Dear Dr. Fine:

Western States Petroleum Association (WSPA) is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California, Arizona, Nevada, Oregon and Washington. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA member companies operate petroleum refineries and other facilities in the South Coast Air Basin and thus have a major stake in the Air Quality Management Plan (AQMP) being prepared by the South Coast Air Quality Management District (SCAQMD or District), and any rule developments that might stem from the final AQMP as adopted by the District's Governing Board.

WSPA believes the 2016 AQMP must be scientifically-based and technically accurate and the District's Governing Board needs to have a thorough assessment of the air quality benefits, environmental impacts, and economic costs associated with that plan. This is consistent with Governing Board Resolution (1989) which directs AQMD Staff to prepare an economic analysis that identifies affected industries, the cost effectiveness of emissions controls, and the potential public health benefits of proposed rules.<sup>1</sup>

Our initial comments are as follows:

19 - 1

- [ 1. The costs presented for proposed control measure CMB-05 (RECLAIM) are significantly understated. This understatement compromises the quality of the assessment's findings related to industrial sector employment and the regional economy.

<sup>1</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 9.

19 - 1  
(CONT'D)

The Preliminary Draft Socioeconomic Report presents a control cost for proposed measure CMB-05 at \$13,500 - \$21,000 per ton of NO<sub>x</sub> reduced. This is reportedly based on information in the Staff Report for the December 2015 amendments to Regulation XX.<sup>2</sup> However, WSPA previously provided information to the District which demonstrated that the cost for refinery sector emission reductions beyond those already required by the December 2015 Regulation XX amendments would be significantly higher.

WSPA, through a third party contractor, had conducted a confidential cost survey of the Southern California refineries related to total capital and operating costs for compliance with the District's proposed NO<sub>x</sub> RECLAIM shaves.<sup>3</sup> This proprietary information was submitted by refiners on a confidential basis to the third-party contractor who de-identified and aggregated the compliance costs for the overall industry. That forecast suggested the refinery sector compliance costs for the December 2015 shave would be nearly twice the estimate presented by AQMD staff.<sup>4</sup>

Furthermore, WSPA's contractor also projected that additional NO<sub>x</sub> reductions could cost the refining industry as much as \$120,000 per ton, using a 10-year equipment life. Even using AQMD Staff's liberal 25-yr equipment life assumption, the estimated costs for additional reductions came to over \$55,000 per ton of NO<sub>x</sub>. While the proposed CMB-05 measure is short on explaining exactly how any additional reductions from RECLAIM might actually be achieved, it does openly contemplate the imposition of command-and-control overlays that might further increase the compliance costs for RECLAIM sources beyond previous projections.

Such higher costs would significantly reduce the cost effectiveness of the proposed measure, and would likely increase adverse regional employment impacts to the industrial sector. We strongly recommend that cost estimates for proposed control measure CMB-05 should be reexamined and the socioeconomic impacts be reassessed.

19 - 2

2. AQMD's 25-year useful equipment life assumption is not appropriate and results in understated costs for proposed measure CMB-05. A ten-year useful equipment life would be more appropriate due to the frequency of District rulemakings. Given the size of the proposed market shave, stranded asset costs may need to be considered in the socioeconomic assessment.

As previously noted, AbT Associates has recommended that the District's socioeconomic program should ensure that the control costs include the full cost of retrofitting existing controls or installing new controls. This would include consideration of any stranded asset costs, such as when the proposed BARCT determination requires replacement of prior investments for emission control equipment, or effectively mandates the replacement of basic equipment.<sup>5</sup>

<sup>2</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 29.

<sup>3</sup> Stillwater Associates LLC, Refinery NO<sub>x</sub> RECLAIM Shave – A Confidential Survey for WSPA, January 2015 (“WSPA Survey”).

<sup>4</sup> WSPA Survey as compared to slides 28 and 30 presented to AQMD NO<sub>x</sub> RECLAIM Working Group Meeting (WGM) on 7 January 2015.

In the case of the RECLAIM program, the District just last year completed a comprehensive assessment for RECLAIM source categories and imposed reductions which established new BARCT levels. So at this time there are no identified control technologies for these source categories, leaving one to wonder how such a severe market shave would even occur short of basic equipment replacements or forced shutdowns.

For this reason, we believe the use of a 25-year equipment life assumption to compute cost effectiveness is inappropriate and results in a systemic understatement of control costs. Control costs for the RECLAIM program should be computed using a 10-year equipment life assumption as is done by most other California air quality agencies. Furthermore, the District should consider whether proposed measure CMB-05 should consider potential stranded asset costs consistent with Abt Associates' recommendations, or explain why that is not needed.

3. The Preliminary Draft Socioeconomic Report fails to provide the economic analysis required under California Health & Safety Code section 39616.

The Preliminary Draft Socioeconomic Report acknowledges that the California Health & Safety Code section 39616 requires certain economic analyses for market based programs.<sup>6</sup> Yet the assessment does not include such an analysis. We would note the specific requirement to demonstrate that market based programs such as RECLAIM will result in equivalent or greater reduction in emissions at equivalent or less cost compared with command and control regulations and future air quality measures that would otherwise have been adopted as part of the District's plan for attainment. Such analysis is wholly missing and should be incorporated into the economic analysis for proposed measure CMB-05.

4. Given the potential adverse socioeconomic impacts that this AQMP could impose on Southern California's industrial sector workforce, the 2016 AQMP and Socioeconomic Report should consider the potential benefits of extending incentives to reduce costs to industrial stationary sources.

The AQMP notes that Southern California's industrial employment remains an important engine for the regional economy. Despite the industry's shrinking workforce over the last 15 years, economic output per worker in the industrial sector is reported in the Preliminary Draft Socioeconomic Report at \$152,000 per worker (2014 data reported in 2015 dollars).<sup>7</sup> And in Riverside County and Orange County, industrial sector jobs pay about 25% more than the average wages for those counties. The difference in Los Angeles County is greater.<sup>8</sup>

Given the importance of industrial sector employment to the regional economy, it would make sense to consider extending financial incentives to large stationary sources as a means of accelerating the deployment of lower emission technologies. This should include major facilities presently subject to the RECLAIM program. Including such an incentive based measure would be consistent with recent discussions at the Ad Hoc Committee on Large Compliance Investments and Future Regulatory Certainty to consider targeted incentives, financing, and funding programs as means for promoting emission reductions and helping businesses remain

<sup>6</sup> H&SC §39616.

<sup>7</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 9.

<sup>8</sup> Ibid.



19 - 4 (CONT'D) [ economically viable, especially in environmental justice areas.<sup>9</sup> We would also note that the Socioeconomic Report projects that 80% of manufacturing job losses under this AQMP would occur in Los Angeles County where the industry is concentrated.<sup>10</sup>

19 - 5 [ 5. The Preliminary Draft Socioeconomic Report states that the RECLAIM control measure is 'expected to mainly affect the petroleum and coal products manufacturing industry, including refineries'.<sup>11</sup> WSPA is surprised and concerned to see that statement, especially since this industry is currently subject to a 56% NOx shave per the December 2015 amendments, while other industry categories either have a lower percentage shave or none at all. Also, the BARCT used to determine the recent shave was set more aggressively for refinery sources than for most non-refinery sectors. Perhaps the intention of this statement was simply to say that since refineries have more RECLAIM units than non-refinery sectors; refineries will bear more absolute cost. However, a proportional shave will have financial impacts whether a facility has one RECLAIM unit or 20. WSPA asks for a clearer explanation and justification of the above statement in the draft report.

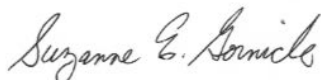
19 - 6 [ 6. The control cost for FUG-01 is listed as \$11,000/ton of emissions reduced<sup>12</sup>. However, as discussed in WSPA's August 18, 2016 letter, there is no factual cost basis for this estimate. This figure should be supported with an actual technical basis or completely removed from the document.

19 - 7 [ 7. WSPA is deeply concerned about the costs and impacts presented in CARB's Mobile Source Strategy for South Coast (Appendix IV-B of the draft 2016 AQMP), including the low-emission diesel standard. The total estimated cost for CARB control measures affecting South Coast is \$28.7 billion; \$834 million is attributed to the low-emission standard alone<sup>13</sup>. WSPA has submitted initial comments to CARB on the low-emission diesel standard in June 2016 and will provide additional comments to SCAQMD on the mobile source strategy once the remaining sections of the AQMP Socioeconomic Report are released in the coming weeks.

WSPA appreciates the opportunity to submit these comments. We may submit additional comments during this process as the District releases additional 2016 AQMP documents including, but not limited to the Draft Socioeconomic Report.

Please contact me with any questions at (562) 307-6353 or [sue@wspa.org](mailto:sue@wspa.org).

Sincerely,



<sup>9</sup> AQMD Ad Hoc Committee on Large Compliance Investments and Future Regulatory Certainty, September 2, 2016.

<sup>10</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 10.

<sup>11</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 26.

<sup>12</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 29.

<sup>13</sup> AQMD, Preliminary Draft Socioeconomic Report for the 2016 AQMP, August 2016. Page 23.

## Responses to Comments Letter #19

Submitted by Western States Petroleum Association (WSPA) on October 30, 2016

### 19-1

Staff appreciates comments on the Revised Draft 2016 AQMP and continued participation in the AQMP development process.

Staff has prepared the socioeconomic analysis consistent with the 1989 Governing Board Resolution.

The costs presented for control measure CMB-05 are based on costs that resulted from an expansive BARCT assessment conducted for the 2015 NOx RECLAIM Amendments and verified by third party consultants. Furthermore, staff conservatively assumed that, in implementing the proposed CMB-05, the cost per ton of NOx emission reductions could potentially increase from the previous BARCT assessment. Therefore, staff has, based on past rulemaking experience, adjusted the cost estimates upward by one and a half times in the AQMP socioeconomic assessment.

Concerning the Commenter's claim that additional NOx reductions would cost the refining industry as much as \$120,000 per ton, beyond the assumption of a shorter equipment life, the claimed cost was based on confidential data and information that the Commenter did not provide staff with access to and as a result staff was unable to review and verify. Previously, such outside analyses have included other ancillary costs for upgrades that are not fully attributable to RECLAIM. Please also see staff response to Comment 19-2 below regarding equipment life.

Details of subsequent NOx RECLAIM amendments to implement CMB-05, including the prospect of transitioning to command and control, would be determined as part of future rulemaking, and staff would conduct further socioeconomic assessment of any future amendments as legally applicable.

### 19-2

In the cost analysis for CMB-05, staff has used a 25-year equipment useful life assumption. The Commenter suggested that the assumption results in a systemic understatement of AQMP control costs, staff should have used a 10-year life, and that staff should consider including stranded costs consistent with Abt Associates' recommendations.

The considerations listed in the control measure, including a program sunset, allowing structural buyers to exit, command-and-control regulation overlays, additional BARCT requirements, and a full assessment of the differential between RTC holdings and actual emissions are not expected to directly impact recently installed control equipment. In the event that the implementation of the control measure renders obsolete any control equipment added that has not reached a 25-year equipment life, staff would add those stranded costs to the cost of that future amendment or consider a longer compliance schedule to maximize the useful life of the control equipment.

The 25-year equipment life is appropriate consistent with the following facts:

1. The actual profile of SCRs in the SCAQMD: 27% of the refinery combustion equipment in the Basin has SCRs installed more than 25 years ago, and 63% of the refinery combustion equipment has

SCRs installed more than 20 years ago. These units are still in operation and thus support the assumption of a 25-year useful life in the cost analysis.

2. Other air districts have used similar assumption for control equipment life in their cost analyses:
  - a) Some SCR for refinery heaters in the Bay Area were installed in 1984 and thus the Bay Area air district staff uses a 20-year useful life in rule development.
  - b) The SCR in the Santa Barbara air district were installed in 1980-1990's and are still in good operating conditions, and thus the Santa Barbara air district staff supports a 25-year useful life of control device.
  - c) Staff found several BACT analyses for the air districts in Florida that used 20- or 25-year useful life for SCR. (See page 271 of the 2015 Draft Final Staff Report on Proposed Amendments to Regulation XX – NOx RECLAIM.)
3. The EPA OAQPS Costs Guidelines use a 20-year life for control equipment such as SCR in their cost analysis.
4. Air pollution control manufacturers that staff contacted indicated that 20- or 25-year life is a reasonable assumption for control device such as SCR, scrubbers, or LoTox applications. (See page 271 of the 2015 Draft Final Staff Report on Proposed Amendments to Regulation XX – NOx RECLAIM.)

### 19-3

There is no legal requirement for a socioeconomic analysis of the AQMP.<sup>1</sup> When SCAQMD's 1991 AQMP was approved by CARB, it was subject to §39616 (d)(1) for plans submitted before January 1, 1993. SCAQMD and CARB have not made §39616 findings for subsequent AQMPs. Therefore, Section 39616 does not impose any requirements on this socioeconomic analysis. Although §39616 (d)(2) refers to plans or plan revisions adopted after January 1, 1993, staff believes this refers to the plan or plan revisions that initially adopts the market-based program, not to subsequent amendments to that program. Nevertheless, staff has conservatively estimated the effectiveness of CMB-05 at \$13,000-\$21,000 per ton of NOx.<sup>2</sup> This is based on the assumption that future BARCT controls would be installed, i.e., is equivalent to the cost of command and control at the covered facilities. If instead some facilities are able to over-control, enabling others to under-control by buying RTCs, this would only occur if costs to do so are less than costs to install BARCT. Therefore, the plan necessarily results in equivalent reductions at no greater than equipment costs. Moreover, the option in CMB-05 is the eventual sunset of RECLAIM. §39616 would not apply in such a case. The specific command and control measures potentially encompassed by CMB-05 have not been developed. CMB-05 expressly states: "A working group of stakeholders and experts will convene in the spring of 2017 to examine the future of the RECLAIM program and develop options and timing for the transition to a command-and-control regulatory structure." To the extent any comparison of RECLAIM to command and control regulations is necessary, that analysis will be done during the rulemaking process. At this time, an analysis is neither necessary nor possible.

### 19-4

Staff agrees that industrial sector employment is a vital part of the regional economy and that Southern California's industrial facilities have dramatically reduced emissions over the last several decades. In order to reach attainment, even with a fair-share approach, further emission reductions are required from stationary sources. To the extent possible, incentive programs are already incorporated into the current

<sup>1</sup> §39616 (d)(2) does potentially apply to plan revisions adopted after January 1, 1993.

<sup>2</sup> Draft Final 2016 AQMP Appendix IV-A.

AQMP strategy. Industrial stationary sources, such as those described in CMB-01, can use incentives for transitioning some of their equipment to near-zero or zero technology. However, RECLAIM facilities are not intended to be included among those eligible to receive incentives under the control measure because these sources currently operate under a cap-and-trade market structure. As such, RECLAIM facilities have the option of installing emission controls and selling excess emission credits, and if economically more advantageous, purchasing RECLAIM trading credits in the open market. If the RECLAIM program is transitioned to command and control, incentives would only be used to support projects that went beyond requirements and were cost-effective.

#### 19-5

The examples of FUG-01 and CMB-05 affecting the petroleum and coal products manufacturers, including refineries, in addition to energy producers, was meant to be illustrative of how control measures may impact a subset of all manufacturers. As noted by the Commenter, petroleum and coal products manufacturers, including refineries, have more RECLAIM units and would bear the greater absolute cost based on the modeling assumptions that a shave would be introduced that is similarly distributed as the 2015 NOx RECALIM Amendments. Socioeconomic impacts will be reassessed during rule development to implement CMB-05 and FUG-01.

#### 19-6

The \$11,000 per ton cost-effectiveness cited by the Commenter was based on the cost of implementing traditional LDAR programs. It was assumed that the cost to implement Smart-LDAR would be at worst the same as how much it costs to implement a traditional LDAR program. The estimate reflected an upper bound considering the lower expected cost of Optical Gas Imaging (OGI) techniques. The cost-effectiveness figure has been revised down to \$4,000 and is based on the OGI technology as a supplement to conventional LDAR (please see Appendix 2-A of Draft Final Socioeconomic Report). Potential cost savings from alternative technologies or labor reductions if Smart-LDAR can act as a substitute are not included. SCAQMD plans to implement the control measure through a public process. Both the Pilot program to demonstrate feasibility of Smart-LDAR and any rule development to control fugitive emissions will be pursued in a public process allowing interested stakeholders to participate. Rule development will consider aligning requirements with similar efforts from other regulatory agencies.

#### 19-7

The Commenter expressed general concerns regarding the proposed mobile source strategy, specifically for the low-emission diesel standard, and stated that additional comments would be provided to SCAQMD. Staff has received further comments on the proposed low-emission diesel fuel requirement on December 19, 2016 and a response is provided to that letter. Please see the response to Comment 27-9.

## COMMENT LETTER #20—PORT OF LONG BEACH

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www.polb.com



Mr. Wayne Nastri  
Acting Executive Officer  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, California 91765

*Electronic Submittal Via:*

<https://onbase-pub.aqmd.gov/sAppNet/UnityForm.aspx?key=UFSessionIDKey>

**Re: Port of Long Beach Comments on the Preliminary Draft Socioeconomic Report (SER) for the 2016 Air Quality Management Plan**

Dear Mr. Nastri:

The Port of Long Beach (Port) appreciates the opportunity to participate in the South Coast Air Quality Management District's (SCAQMD's) 2016 Air Quality Management Plan Advisory Committee, and to comment on the Preliminary Draft Socioeconomic Report (SER) for the 2016 Air Quality Management Plan released on August 31, 2016. The Port recognizes the amount of effort that has gone into development of the SER, and acknowledges SCAQMD's efforts to release a plan that seeks to balance "traditional" regulatory measures with innovative incentive-based measures. Accordingly, the Port offers the following comments on the SER.

### General Comments

20 - 1

First, the Port requests more time to provide comments on the SER once all chapters have been released. As of the writing of this letter, only Chapters 1-3 and 6 are available and some key analyses are not presented in the August 2016 preliminary draft. Specifically, the following key analyses and related chapters have not been completed and/or presented:

- Employment impact
- Impacts on economic groups and communities
- Impacts on competitiveness
- Small business impact analysis (placeholder on p. 28)
- Cost-effectiveness using discounted and levelized cash flow (DCF and LCF, respectively) for non-AQMD control measures (which account for the greatest reductions in the AQMP)
- Concentration-Response (C-R) sensitivity analyses (p. 41) for premature deaths avoided

20 - 2

Additionally, key papers cited in the SER should be noticed and placed on SCAQMD's website, particularly those related to "Willingness-to-Pay" and "Value of a Statistical Life" (p. 39, footnote 44; see details in minor comments in Attachment 1).

*City of Long Beach Harbor Department*

20 - 3 Second, the draft AQMP has control measures that could directly affect the port, including on-road heavy duty truck measures (e.g., proposed federal and state low NO<sub>x</sub> standards and further deployment of near-zero/zero emission trucks), freight trains (e.g., more stringent federal standards and further deployment of cleaner locomotives), and ocean-going vessels (e.g., Tier 4 vessel standards, further development and incentives for cleaner OGVs). These measures have, to some extent, costs and emission reductions assigned to them in the SER. Other important port-related measures include MOB-01, MOB-02, and MOB-03, which are “facility-based” mobile source measures for ports, rail yards, and warehouse distribution, respectively. These last measures are not quantified in the preliminary draft SER. The Port requests a full socioeconomic analysis of all control measures, and that the socioeconomic analysis be completed and an adequate opportunity for public comment be provided prior to action on the Draft 2016 AQMP.

20 - 4 The Port appreciates the efforts that AQMD is making to improve the Socioeconomic Analysis and strongly encourages continuing efforts to allow the future assessment of AQMP impacts on small industry sectors and small business, which are key parts of the supply chain. Also, the Port appreciates the discussion throughout the SER on the pivotal part that the goods movement sector plays in the regional economy.

#### Technical Comments

##### Chapter 1

20 - 5 The latest scientific evidence relating ozone and PM<sub>2.5</sub> exposure to public health (p. 4-5) must include information sent to the Scientific Technical Modeling Peer Review Advisory Group (STMPR AG) and comments on Appendix I (Health Effects), in particular, California-specific results of peer-reviewed papers such as those presented by (and/or referenced by) Professor Stanley Young (adjunct professor of statistics at North Carolina State University, the University of Waterloo, and the University of British Columbia, as well as adjunct Professor of biostatistics at Georgia Southern University) that indicate a much lower concentration-response function for PM<sub>2.5</sub> and mortality.

The Port strongly recommends that median pay rather than average pay also be used in the discussion of the economic outlook for potentially affected industries (pp. 6-11) because using the average would skew salaries in certain sectors with high part-time work forces. We also note that transportation/warehouse jobs pay two to three times more money than restaurant and other lowskilled jobs (pp. 8-9).

##### Chapter 2

20 - 6 The SER indicates that there will be no analysis of the unquantified measures that appear in the Draft AQMP, among which is MOB-1, the facility-based measure aimed at ports. This means there will be no comprehensive review of the impacts associated with implementation of a facility-based cap on port emissions, which could have devastating socioeconomic effects. The Port requests a full socioeconomic analysis of all control measures, including those without quantified emission reductions.

20 - 7 Moreover, the Port has concerns about SCAQMD analyzing only the incremental costs associated with the AQMP strategies. Incremental cost analysis is appropriate only if the private industry can upgrade

20 - 7  
(CONT'D)

to cleaner equipment as part of its normal replacement schedule; however, the private industry may be forced to accelerate fleet turnover to meet the aggressive attainment deadlines. This situation could be exacerbated by adoption of measures such as MOB-1, although there is no way of knowing because the MOB-1 timeline is not presented in the Draft 2016 AQMP or SER. An accelerated replacement schedule could result in significant private investments in equipment before the end of the equipment's useful life, and using only incremental costs as the basis for analysis could far underestimate the true cost to society.

20 - 8

Additionally, the SER assumes that federal, state, or local governments will be responsible for financing the entire incentive amount (p. 18). SCAQMD has identified the need for nearly \$16 billion in incentives to meet the region's attainment goals. Only a small portion of this necessary investment has actually been identified. Indeed, SCAQMD is developing a comprehensive strategy to seek more incentive dollars, but there is no guarantee those dollars will materialize. Because the fleet turnover will be expected to happen with or without government subsidies, the Port strongly urges SCAQMD to analyze the socioeconomic impacts of the Draft 2016 AQMP assuming no additional incentive dollars are available.

Furthermore, it appears the SER does not analyze the socioeconomic impacts associated with the public tax increases necessary to support more incentive funding. The Draft 2016 AQMP clearly states AQMD's intent to seek local and state ballot measures, which would include taxpayer funding (p. 4-68). If tax increases are assumed, the SER must analyze the impact of higher public taxes. If tax increases are not assumed as a strategy to secure more incentive funding, the SCAQMD must identify the funding source and analyze those impacts in the SER.

20 - 9

Also, the Port has concerns related to CARB's Mobile Source SIP assumptions for costs related to truck/vessel replacements (as reflected in Appendix 2-A) and will continue to work with CARB and AQMD to improve the estimates of these costs and scope of needed incentives for accelerated fleet turnover.

20 - 10

The Port reserves the right to make technical comments on the small business analysis and LCF/DCF cost-effectiveness analyses (particularly for the CARB mobile source control measures) when these analyses are finally released.

*Chapter 3*

20 - 11

The Port requests clarification as to which initiative funding scenario is modeled for Figure 3-1. The reductions for light-duty vehicles (LDV) and heavy-duty vehicles (HDV) in the different incentive funding scenarios do not appear to match the emission reductions for those source categories in draft AQMP Appendix V, Attachment 3. Reductions for the more realistic incentive strategies (focus on larger vehicles/equipment) should reflect relatively small reductions in LDV emissions (and larger reductions for HDVs) than the CARB SIP strategy; this could significantly affect the spatial distribution of PM<sub>2.5</sub> reductions.

20 - 12

As noted (p. 41), sensitivity analyses of alternative concentration-response (C-R) functions, such as those brought up by Professor Young in our comments on Chapter 1 above, should be conducted, as well as an analysis of health benefits above the health standards only, which would be different from



20 - 12  
(CONT'D)

the similar sensitivity test using the “lowest measured level (LML)” of PM<sub>2.5</sub> already conducted by SCAQMD staff (see Appendix 3-B, p. 112).

The overwhelming majority of premature deaths avoided, which is the main driver of the monetized public health benefits, are reductions of PM<sub>2.5</sub> occurring in areas that already achieve the PM<sub>2.5</sub> standards.

We strongly recommend that a complementary analysis of the health effects estimates (Table 3-3) and monetized annual health benefits (Table 3-4) be calculated using the federal standards as cutoffs; this analysis is crucial to understanding the costs and benefits of attaining healthful concentrations (i.e., bringing concentrations to the health standard) compared to the costs and benefits of reducing exposure of healthful air pollutant concentrations.

20 - 13

The Port requests to see the cited 2016 papers related to “Willingness-to-Pay (WTP)” and “Value of a Statistical Life (VSL)” to understand the South Coast per capita WTP used in the analysis.

20 - 14

The Port believes the sensitivity analysis described in Table 3-5 should be revised. The annual real income growth rate was taken as 1.9% per year from 2019 through 2031 (per Appendix 3-B, p. 109), but this rate, which appears to be for California not just the South Coast, may be nonsensical for the vast majority of South Coast workers (particularly those in the Inland Empire). The Port requests that this growth rate be revised based on local forecasts.

The use of income elasticity other than  $\epsilon_i = 0$  should be justified given that the vast majority of South Coast workers do not have discretionary income and that any increase in income growth rate would be preferentially used for necessities and reducing debt.

20 - 15

The Preliminary Discussion of the Health Effects of Unemployment recognizes the need for such an assessment but does not account for several comments proffered by STMPR AG members and others. The insufficiency of the analysis and need for revisions is strikingly clear when a key conclusion is that “as headline unemployment rates went up, public health metrics improve” (p.46). It was strongly suggested that non-headline employment rates be used, such as the Bureau of Labor Statistics (BLS) U6, which includes discouraged workers, all other marginally attached workers, and those workers who are part-time purely for economic reasons, as well as the official BLS U3 unemployed (unemployed and actively searched for work in the past 4 weeks). We strongly suggest that this issue continue to be studied and refined by SCAQMD staff during the development of the incentive funding program and implementation of the 2016 AQMP.

*Chapter 6*

20 - 16

The Port understands that SCAQMD staff has conducted an Environmental Justice (EJ) working group as a sub-group to the STMPR AG for the purposes of implementing the 2014 Abt Report recommendations for a new analysis—evaluating the distribution of health risks and comparing the differences, if any, between EJ and non-EJ communities of implementing the 2016 AQMP versus not implementing the 2016 AQMP. Tables 6-4 through Tables 6-6 indicate “that, on average, EJ communities are projected to experience greater health benefits as a result of Plan implementation” and that “EJ communities are projected to experience a[sic] larger per capita health benefits.”



**20 - 16  
(CONT'D)**

Please update this analysis by modeling an incentives strategy that preferentially incentivizes cleaner HDVs over cleaner LDVs, which should provide greater emission reductions along goods movement corridors. Also, the Port requests an analysis of how tax increases necessary to support incentive funding could adversely affect EJ communities, as many tax mechanisms disproportionately impact low-income residents.

The Port appreciates the opportunity to comment on the Preliminary Draft SER and reserves the right to offer more extensive and fuller comments once all sections are available.

Sincerely,



Heather A. Tomley  
Director of Environmental Planning  
Port of Long Beach

## Responses to Comment Letter #20

Submitted by Port of Long Beach on October 31, 2016

### 20-1

Staff appreciates the comments on the Socioeconomic Report and the continued participation in the AQMP development process.

The Draft Socioeconomic Report and related Appendices were released in their entirety on November 19, 2016, with a public review and comment period of 30 days that ended on December 19, 2016. Preliminary drafts of several portions of this document had been previously released. In particular, preliminary drafts of Chapters 1-3 and Appendices 2-A, 3-A, and 3-B were released on August 31, 2016. A preliminary draft of Chapter 6 was released on September 23, 2016. Preliminary drafts of Chapters 4, 5, 7, 8 and Appendix 4-A were released on November 2, 2016. Additionally, the information included in these chapters and appendices was discussed at multiple Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group meetings and AQMP Advisory Group meetings. The revised and new chapters included all key analyses referenced in the comment. Specifically,

- Chapter 4 discussed the overall jobs (employment) impact, jobs impact by economic sector, and jobs impact by occupational earnings group. Chapter 6 also discussed the health impacts and distributional effect on community groups.
- Appendix 4-C reported competitiveness impacts based on four macroeconomic indicators, including Industry GDP, Costs of Production, Impacts on Delivered Prices, and Impacts on Imports and Exports.
- Chapter 2 included a small business impact analysis.
- Chapter 2 also has a complete cost-effectiveness analysis, presenting cost-effectiveness for all control measures with quantified costs and using both discounted cash flow (DCF) and levelized cash flow (LCF) methods. A detailed explanation of both cost-effectiveness methodologies (LCF and DCF) is available in Appendix 2-B.
- Chapter 3 has an expanded section of sensitivity analyses. One of the sensitivity analyses examined alternative results of public health benefits based on several sets of alternative concentration-response (C-R) functions. These alternative C-R functions are either based on studies of larger geographies (i.e., California or nationwide studies), or studies of cardiovascular disease-related mortalities as opposed to all-cause mortalities.

### 20-2

The Draft Socioeconomic Report includes a bibliography section with a comprehensive list of references to all scientific articles and reports cited in the analyses. All consultant reports prepared by Industrial Economics, Inc. (IEc), which include the two health benefits valuation memos on the concept of “willingness-to-pay” (WTP) and the recommended use of value of statistical life (VSL), have all been made available on the SCAQMD’s Socioeconomic Analysis webpage at

<http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/socioeconomic-analysis>.

Electronic notices of the availability of consultant reports were sent to members and interested parties of

the 2016 AQMP Advisory Group and the Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group.

### 20-3

The Socioeconomic Report quantifies costs for control measures with quantified emission reductions. As stated in Chapter 4 of the Draft Final 2016 AQMP and reiterated in Appendix 2-A of the Draft Socioeconomic Report, the “facility-based” SCAQMD mobile source measures—MOB-01, MOB-02, and MOB-03—are being proposed to facilitate local implementation of the State Implementation Plan (SIP) Strategy “Further Deployment of Cleaner Technologies” measures. The SCAQMD measures propose a process to also identify measures, including voluntary actions that could potentially result in additional NOx emission reductions beyond the state’s emission reduction commitments. Since these actions are not specifically identified at this time, it is not feasible to estimate costs.

### 20-4

Staff appreciates the Port’s acknowledgement of staff’s efforts to enhance and enrich the AQMP socioeconomic assessment. Chapter 2 of the Draft Socioeconomic Report includes a discussion on the size of businesses in each of the industry sectors that could be potentially affected by the 2016 AQMP. Staff acknowledges that the descriptive nature of this analysis can always be improved. Staff is making continuous efforts and currently working with expert consultants to identify the latest and most suitable methodologies and tools to improve economic impact assessment for small businesses and in situations where the economic impact is expected to be of a small scale but concentrated in a limited number of specific industries. Staff expects to be able to apply the recommended methods to upcoming rule impact assessments and for future AQMP socioeconomic assessment.

### 20-5

The concentration-response functions used to estimate public health benefits in the Socioeconomic Report were based on recommendations put forth by expert consultants at IEC and their scientific advisor Dr. George Thurston (Professor and Director of the Program in Exposure Assessment and Human Health Effects at New York University School of Medicine). The basis of IEC recommendations was a thorough literature review using study selection criteria presented to and reviewed by the 2016 AQMP Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group. It should be emphasized that the four Los Angeles-specific concentration-response (C-R) functions—all of which came from published, peer-reviewed, and widely circulated and cited studies and reports—were recommended and used in the estimation of avoided premature deaths associated with long-term exposure to PM2.5. In recognition of the uncertainties inherent in all scientific research and studies, sensitivity tests were additionally conducted using alternative C-R functions recommended by IEC based on peer-reviewed California studies and nationwide studies, respectively. Appendix I (Health Effects) of the 2016 AQMP also includes a discussion on studies within the state of California in order to present a “local perspective” of air pollution-related health effects by highlighting studies conducted in the South Coast Air Basin, Southern California, or California. Please see staff response to Comment 12-1 for further discussion.

Staff appreciates the suggestion to report median in addition to average wage for each potentially affected industry. However, the Quarterly Census of Employment and Wages used to provide average wages in the Socioeconomic Report do not provide median wage statistics and the computation of median wage based on this dataset is not possible. Staff agrees that the average wage does not reflect the underlying wage distribution, and as cautioned in Footnote 12 in Chapter 1 of the Draft Socioeconomic

Report, the average annual pay is affected by the ratio of full-time to part-time workers in an industry. This factor can partially explain the large differential in average wages between transportation/warehousing jobs and restaurant jobs that was noted by the Commenter.

#### 20-6

Please see staff response to Comment 20-3.

#### 20-7

Incremental cost is not necessarily the price difference between the replaced and replacement equipment. As stated in Chapter 2 of the Draft Socioeconomic Report, the incremental costs represent the cost difference between a “business as usual” path and an alternative path as proposed by the Revised Draft 2016 AQMP to reach the attainment targets. In the case of a natural equipment or fleet turnover, the total incremental cost would equal the anticipated price difference between conventional technology and near-zero or zero emission technology, plus additional cost differences in terms of fuel prices and other operation and maintenance costs. The incremental cost estimates are largely based on current price estimates of near-zero or zero emission technology and usually represent an upper bound of anticipated prices, which are expected to decrease over time as advanced clean technologies develop further and their market share increases. In the case of an accelerated turnover of mobile source equipment or fleets, which is of concern to the Commenter, the incremental costs are based on program guidelines and/or observed proxies for incremental costs within the existing incentive programs, such as the Surplus Off-Road Opt-In for NOx (SOON) Program for construction and industrial equipment and the Carl Moyer Program that incentivizes cleaner-than-required heavy-duty engines. For example, Appendix 2-A of the Draft Socioeconomic Report states that the Carl Moyer Program guidelines consider 80 percent of actual cost to be the incremental cost of replacement equipment and 85 percent of actual cost to be the incremental cost of engine repowers; the remainder (20 percent for replacement and 15 percent for repower) is considered the overhaul and maintenance expense that would be incurred to keep the old engine/equipment operational if no upgrades are made (page 2-A-23).

#### 20-8

Chapter 7 of the Draft Socioeconomic Report analyzes CEQA alternatives. Alternative 3—CARB and SCAQMD regulations only—is designed to implement those control strategies that are regulatory in nature only and assumes the remaining emission reductions necessary to attain the NAAQS would be achieved under CAA §182(e)(5) measures, or black box measures. For socioeconomic analysis purposes, no incentives would be available under this CEQA alternative, and all costs were assumed to be incurred by the directly affected entities including private industries, some in the public sector, and consumers. The average annual incremental cost, which amounted to about \$850 million a year, and the associated job impact of an average 10,000 jobs foregone per year were very similar to what was projected for the implementation of 2016 AQMP.

In Chapter 4 of the Draft Final Socioeconomic Report, staff evaluated the job impacts of two alternative scenarios with respect to funding of the incentive programs proposed in the Draft Final 2016 AQMP. The scenarios were chosen for economic impact evaluation not because they would be the most likely, as the most likely case cannot yet be surmised, but because they would represent extreme cases which provide the upper and lower bounds of the analysis of projected job impacts.

On one end of the spectrum, staff considered the case where all incentives would be funded by directly reallocating funds from existing state programs within the four-county region to be used for the proposed incentive programs. This scenario is expected to have the largest negative job impact because state government functions and operations exhibit some of the largest employment multipliers according to the REMI model of the regional economy. The large employment multiplier results from the fact that the government sector itself and the sectors to which a large portion of government spending goes to (e.g., construction or healthcare and social assistance) are relatively labor intensive. Therefore, a budget reduction of the existing public programs and services tends to have a greater negative regional job impact than do other fiscal mechanisms, such as levying new taxes on regional residents or introducing new fees for business operations.

In a scenario where incentives are instead financed by new taxes, the resulting decrease in household spending would not be concentrated in labor intensive industries. In addition, a proportion of that spending decrease would impact not only businesses inside the four-county region but also businesses located outside the region (i.e., greater leakage), thereby causing some of the potential negative job impacts from spending decreases to occur outside of this region. Similarly, increases in business operation costs through the introduction of new operation-related fees would affect a variety of industry sectors, but they are less likely to be as labor-intensive as those affected by a state budget reallocation. Moreover, certain fee structures, such as cargo handling fees on containers, would largely affect businesses located outside the region and may or may not indirectly affect their upstream suppliers within the region.

On the other end of the spectrum, staff considers the case where all the incentive programs would be funded from sources outside the region and would therefore have a negligible impact on individuals and businesses within region. This case would then represent the lowest impact funding scenario, an example of which is the scenario where the proposed incentive programs would be fully funded by existing federal revenue sources.

The Draft Financial Incentives Funding Action Plan for the Draft Final 2016 AQMP provides information on many potential funding opportunities, and local and state ballot measures are one of many potential funding opportunities that the SCAQMD would explore as means to securing incentive funding. However, a systematic assessment of these opportunities through the public process is necessary to determine the most likely scenarios. It is therefore premature to examine the socioeconomic impacts of the most likely scenarios. Staff will conduct economic impact evaluations as the most likely scenarios are identified through the public working group process.

#### 20-9

Staff welcomes the Port's suggestions and input to enhance the cost assumptions and estimates related to truck/vessel replacements as included in CARB's Mobile Source Strategy. Staff also would like to emphasize that the cost estimates for CARB's "Further Deployment" measures were revised in the Draft Socioeconomic Report and now reflect the incentive funding scenario in the Draft Final 2016 AQMP Table 4-20. This scenario focuses on incentivizing heavy-duty vehicles and off-road equipment.

#### 20-10

The analyses of small business and cost-effectiveness are now included in Chapter 2 of the Draft Socioeconomic Report. Staff welcomes any comments and suggestions from the Port.

## 20-11

The changes in pollutant concentrations presented in Figure 3-1 of the Draft Socioeconomic Report correspond to the attainment scenarios described in Chapter 4 of the Revised Draft 2016 AQMP. The figure was revised in the Draft Final Socioeconomic Report based on air quality modeling data presented in the Draft Final 2016 AQMP Appendix V, Attachment 3.

Changes in ozone concentration presented in Figure 3-1 are driven mainly by changes in NO<sub>x</sub> emissions, whereas changes in PM<sub>2.5</sub> are driven by changes in both NO<sub>x</sub> and direct PM emissions. NO<sub>x</sub> reacts in the atmosphere with other chemicals and sunlight to produce ozone, whose concentrations generally rise downwind from emission sources. NO<sub>x</sub> also reacts to form nitric acid that reacts with ammonia in the air to form particulate matter. As in the case of ozone, due to atmospheric dispersion and chemical dynamics, secondary PM is formed downwind from emission sources. Direct PM emissions have a stronger contribution to PM<sub>2.5</sub> concentrations near the sources of emissions.

Figures 3-16 and 3-18 in Chapter 3 of the Draft Final 2016 AQMP present the top ten emitters of NO<sub>x</sub> in the years 2023 and 2031 under the baseline scenario of emission inventory. Heavy-duty trucks emit four to five times more NO<sub>x</sub> emissions than light-duty vehicles. Therefore, controlling NO<sub>x</sub> emissions from heavy-duty trucks would tend to reduce emissions of NO<sub>x</sub> per se along goods movement corridors. However, the associated effect on ozone concentrations would still be spatially distributed in a similar pattern as in the case of controlling NO<sub>x</sub> emissions from light-duty vehicles, due to the atmospheric dispersion of ozone formation. For similar reasons, the associated effect of reducing NO<sub>x</sub> emissions on secondary PM formation would not vary much between controlling NO<sub>x</sub> emissions from heavy-duty and light-duty vehicles.

It should be emphasized that the primary target of the proposed mobile source control measures is NO<sub>x</sub> emission reductions. In terms of directly emitted PM<sub>2.5</sub>, its emissions from heavy-duty trucks are already projected to decline substantially over time even without implementation of the 2016 AQMP, or under the baseline scenario of emission inventory (see Figures 3-25, 3-28 and 3-30 in Chapter 3 of the Final 2016 AQMP, which are based on the 2014 EMFAC model results). Any further control of directly emitted PM<sub>2.5</sub> from heavy-duty trucks would tend to reduce the impact of primary PM along goods movement corridors. However, the effect of any such controls on reducing secondary PM formation would be as widespread as in the case of controlling direct PM<sub>2.5</sub> emissions from light-duty vehicles and may not change substantially the spatial pattern of modeled changes in PM<sub>2.5</sub> concentration.

## 20-12

First, regarding sensitivity analyses using alternative C-R functions, please refer to staff responses to Comments 12-1 and 20-5.

Second, regarding an analysis of health benefits above the federal health standards only, staff reasonably assume that the health standards mentioned by the Commenter refer to the National Ambient Air Quality Standards (NAAQS). Staff conducted the public health benefits analysis based on recommendations of expert consultant IEC. These recommendations reflected the latest scientific evidence, as summarized in U.S. EPA's Integrated Science Assessment (2009) and as used in its regulatory impact analysis (2012), that public health benefits would continue to accrue due to reduced exposure to air pollutants at all levels of pollutant concentration, even at levels below the current NAAQS. Therefore, although the air quality attainment demonstration was performed with respect to the worst air quality site within the South Coast

Air Basin, other areas within the Basin, including those areas with air quality already below the NAAQS, would also benefit from cleaner air and the related public health improvement.

The Socioeconomic Report quantifies the full cost associated with all quantified emission reductions that are expected to lead to attainment of the NAAQS. Similarly, the Report also accounts for all quantifiable public health benefits that are anticipated to occur within the Basin, including the benefits associated with reduced exposure at concentration levels below the NAAQS. Even though the majority of the estimated costs of the Draft Final 2016 AQMP is associated with NO<sub>x</sub>-reducing control measures for ozone attainment, these measures would also lead to decreased PM<sub>2.5</sub> concentrations, as NO<sub>x</sub> is a precursor to secondary PM<sub>2.5</sub> formation. The kind of analysis suggested by the Commenter would exclude many quantifiable benefits of the plan but include all of the estimated cost, so staff does not consider this to be a reasonable or appropriate analysis.

Based on IEC's literature review and recommendation, there is greater uncertainty regarding the health effects at very low levels of pollutant concentration, partly due to a limited number of studies with observed concentration at very low levels. For the purpose of addressing this source of uncertainty, staff conducted an uncertainty analysis using the Lowest Measured Level (LML) of concentrations in the studies used to derive the C-R functions.

#### 20-13

Please see staff response to Comment 20-2. The direct links to the two health benefits valuation memos are:

Review of Mortality Risk Reduction Valuation Estimates for use in 2016 Socioeconomic Assessment – [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos\\_november2016/scmortalityvaluation\\_112816.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/scmortalityvaluation_112816.pdf)

Review of Morbidity Valuation Estimates for Use in 2016 Socioeconomic Assessment – [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos\\_november2016/scmorbidityvaluation\\_112816.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/scmorbidityvaluation_112816.pdf)

#### 20-14

Staff appreciates the Port's suggestion and welcomes any reference to a local forecast of personal income. While staff was not able to locate a published and publicly assessable forecast of personal income for the South Coast region or Southern California only, staff will revise the long-term income growth rate to 1.1% in the Draft Final Socioeconomic Report. This revision is still based on statewide forecast published by the California Department of Finance, which now reflects *per capita* instead of *total* income growth, as revised in the Draft Final version of Appendix 3-B.

The income elasticities: 0, 1.1, and 1.4 that were used in the public health benefits analysis are based on the recommendation by IEC and their scientific advisor Lisa Robinson (Senior Research Scientist at the Harvard University Center for Health Decision Science) and derived from existing scientific studies. When income elasticity is assumed to be zero (i.e., the willingness-to-pay for health risk reduction does not increase with income growth), the implied monetized public health benefits can be considered as the lower bound of the estimates. However, according to the economics literature, health risk reductions are usually considered and shown to be a "normal good" in economics jargon, which means that the demand for this good would increase as income grows higher and therefore implies a positive income elasticity.

## 20-15

In response to stakeholder requests to study the health effects of unemployment, staff contracted with Dr. Erdal Tekin, Professor of Public Policy at the American University, who is also a research associate at the National Bureau of Economic Research (NBER) and a research fellow at the Institute for the Study of Labor (IZA). The report ([http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth\\_dec2015\\_012616.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth_dec2015_012616.pdf)) is summarized in Chapter 4 of the Draft Final Socioeconomic report. Consistent with findings in several other studies published in peer-reviewed scientific journals, the report found that the average death rates in the four counties decreased as the headline unemployment rates rose. In Dr. Tekin's report and in the journal articles, sensitivity tests were conducted to ensure the robustness of the result. It was hypothesized that phenomena that usually occur during economic downturns may have improved health outcomes for the non-working age population, specifically for children and the elderly. Reduced air pollution due to less travel and less industrial activities could be one factor, and the more abundant supply of skilled labor in the healthcare industry, such as in nursing homes, could also reduce mortality incidence among the physically more fragile population. Staff will continue to review emerging literature on this topic.

## 20-16

As mentioned by the Commenter, staff has conducted an Environmental Justice (EJ) working group as part of the STMPR Advisory Group to review and provide comments and input to the EJ analysis (Chapter 6 of the Draft Final Socioeconomic Report). Please refer to staff response to Comment 20-11 regarding air pollutant emissions and the spatial distribution of projected changes in ozone and PM2.5 concentrations. Please refer to staff responses to Comment 20-8 regarding alternative sources of incentive funding.





October 31, 2016

Dr. Elaine Shen  
Program Supervisor: Socioeconomic Analysis  
South Coast Air Quality Management District  
21865 Copley Dr.  
Diamond Bar, CA 91765

**Re: Comments on Preliminary Draft Socioeconomic Report of the Draft 2016 Air Quality Management Plan ("AQMP")**

Dear Dr. Shen:

21 - 1

On behalf of the undersigned organizations, we submit this comment letter on the preliminary Draft Socioeconomic Report (" Report") of the Draft 2016 Air Quality Management Plan ("AQMP" or "plan"). We understand the Draft 2016 AQMP will be revised to address comments received and thus will affect the socioeconomic modeling and additional draft chapters addressing the macroeconomic impact analysis, the environmental justice analysis, and the CEQA alternatives analysis have yet to be released to the public. These analyses are essential components of the Report, however preliminary it

**21 - 1  
(CONT'D)**

may be, therefore we request the minimum 60-day review period for preliminary draft Report begin after the additional draft chapters and modeling are released to the public.

As we have previously commented (correspondence submitted September 9, 2016), we continue to respectfully request that the South Coast Air Quality Management District (the District, AQMD) provide ample time for stakeholders to review and comment on the revised draft AQMP. The omitted chapters and analysis from the Preliminary draft render the draft wholly incomplete, proper stakeholder engagement and input on these vital socio-economic issues is not feasible until the Report is complete.

**I. Economic Outlook for the Potentially Affected Industries by the Draft 2016 AQMP**

As clarified in our prior correspondence, the undersigned organizations have joined to ensure all residents, particularly the most vulnerable residents in the region, have the right and ability to breathe clean air. We understand that the right to breathe and the right to living wage employment are not mutually exclusive or competing premises.

**21 - 2**

We appreciate discussion presented acknowledging regional trends in manufacturing employment simply reflect national trends in the industry. However, we have noted the analysis fails to present any disaggregated analysis on employment growth in the basin's most disadvantaged communities or if this employment growth will contribute to alleviating poverty rates in the most burdened communities. We recommend the socio-economic assessment also provide a targeted analysis not only on affected industries but employment growth projections, as related to each industry, for the most vulnerable communities.

**21 - 3**

There is no discussion in the plan of targeted incentives for disadvantaged communities or a plan to ensure that the District's most heavily burdened and vulnerable communities have primary access to residential incentives in the plan, particularly those related to cooking and weatherization.

**21 - 4**

We are also concerned that failure to implement the plan is contextualized in regards to economic consequences, social impacts of increasingly poor health and the inability to fulfil resident's right to breathe clean air have graver consequences than mere economic ones.

**II. Evolution of the Socioeconomic Analysis.**

**21 - 5**

The Report touts a dynamic and responsive evolution of the District's ability to analyze complex socio-economic impacts of the Plan. The State of California has developed innovative, reliable and responsive tools, specifically CalEnviroScreen, which are completely omitted from any discussion in the Report. We are concerned with the Districts reliance on a consulting group from out of state and the lack of methodologies tried and tested in California.

We recommend the analysis be further developed with methodologies, research institutions, community based organizations indigenous to California and even more so, the assessment should provide a space for inclusion of community generated data.

**III. Analysis of the Impact of Regulations on Business Relocation**

21 - 6

In July of 2016, the most recent meeting of the Socio-Economic workgroup, representatives of our organizations requested AQMD staff revise all information related to business leaving the region. We wanted to methodologically assess whether or not the burden of regulations would be substantive enough to drive declines in employment supposedly resulting from alleged mass relocations of business due to an over regulated environment. We were informed by District Staff that when a business leaves the region, AQMD provides a questionnaire to be completed; these forms contain information related to reasons for relocation or abandoning the region. Staff committed to reviewing questionnaires to provide data on primary reasons for business leaving the region, none of this information is included in the Report.

Understanding whether or not Air Quality regulations provide business with an impetus for relocation should be a key component of any analysis related to incremental costs of the Plan. It is not methodologically sound to simply assume increased regulations increment costs so much so that they would impact employment by driving business to relocate.

**IV. Draft AQMP Costs**

21 - 7

Although there is a clear tabulation of incremental costs per sector it is unclear how these increased costs will actually affect the industry's ability to sustain employment projections. The employment projections in the Socio-Economic Assessment are directly taken from the Southern California Association of Government's (SCAG) Regional Transportation Plan and Sustainable Communities Strategies (the RTP/SCS), a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The preponderance of data relating to the economic burden on industry could inadvertently lead stakeholders to believe that the costs of the Plan could limit the District's capacity for economic growth, when clearly the projected growth is contingent upon the attainment of environmental goals not in spite of it.

**V. Public health Benefits**

21 - 8

Although we appreciate the quantification and causal analysis of the Public Health benefits of the Plan, we are concerned that the data was not disaggregated and fails to demonstrate where the majority of these benefits would fall.

It is imperative that the Public Health Analysis include data related to the most polluted and socio-economically disadvantaged communities in the basin. We recommend the Report contain a disaggregated analysis of these benefits per census tract. We appreciate the relationship between health effects and unemployment, but without an analysis of unemployment and health impacts per census tract the information is ambiguous at best.

**VI. EJ Analysis of Pollution Impacts**

21 - 9

We appreciate the detailed analysis of the EJ impacts using five different definitions of EJ. We also appreciate the analysis of both relative and absolute inequality.

21 - 9  
(CONT'D)

For us the issue of absolute inequality is crucial. On page 13, the draft report says:

In terms of absolute inequality as measured by the Kolm-Pollak Index (see Table 6-9), it also shows greater within- than between-group dispersion. Furthermore, the changes of absolute inequality largely corroborate the results shown for relative inequality: the between-group inequality also increases for the health risk of ozone exposure related asthma ED visits among children, with the only exception when EJ is designated at the top 50 percent of Basin-wide population under Alternative Definition 2. Therefore, the decrease in overall inequality, as measured by the Kolm-Pollak Index for the same morbidity risk shown in Table 6-7, is due to a larger reduction in the absolute within-group inequality, which dominates any increase in the absolute between-group inequality.

We note that Table 6-9 shows slight increases in absolute inequality by 2031 in all cases for Ozone Exposure Related Asthma ED Visits for Asthma (Among Residents Younger than 18) (although it shows slight decreases for PM2.5 and Ozone Exposure Related Mortality Risk (Among Residents 25 Years or Older).

21 - 10

However, the key issue for us is the question of geographical health impacts disparity inflicted on all people living in areas of high mortality. For example, the Ports area is shown in the attached MATES-IV map to be the only area in the Basin with greater than 1200 cases per million. Yet only one of the four EJ maps show any census tract in the top 25% of tracts, and it (Fig. 6-4) shows only one.

The MATES IV and other SCAQMD studies have documented the most polluted areas in the Basin also include within a mile of all freeways.

We understand that this neglect of showing the full impacts of actual air quality risk is due to the admirable attempt to include more than air quality in a comprehensive EJ analysis.

Yet this is an air quality plan. It does not attempt to reduce poverty or address education, linguistic isolation, low birth weight, or unemployment. The hundreds of thousands of people living in the highest risk areas (the Ports, refineries, and within a mile of freeways deserve a separate calculation showing how their actual air quality risk will decrease both relative to now, and compared to the others living in lower risk areas.

21 - 11

We also request that the report present a similar analysis for 2023 because people can't wait to 2031, they are dying now.

\* \* \* \* \*

We welcome the opportunity to discuss the items outlined in this correspondence. Should you have any concerns or clarification, please contact: Michele Hasson: Michele.h@ccaej.org

Sincerely,

Michele Hasson, Center for Community Action and Environmental Justice

Bahram Fazeli, Communities for a Better Environment

David Petiti, Natural Resources Defense Council

Adrian Martinez, Earth Justice

Taylor Thomas, East Yard Communities for Environmental Justice

Evan Gillespie, Sierra Club

Martha Dina Arguella, Physicists for Social Responsibility Los Angeles

## Response to Comment Letter #21

Submitted by Center for Community Action and Environmental Justice, Communities for a Better Environment, Natural Resources Defense Council, Earth Justice, East Yard Communities for Environmental Justice, Sierra Club, and Physicians for Social Responsibility Los Angeles on October 31, 2016

### 21-1

In the interest of transparency, meetings were held to discuss the socioeconomic analysis and preliminary draft chapters of the 2016 AQMP Socioeconomic Report were released as they were completed. In particular, preliminary drafts of Chapters 1-3 and Appendices 2-A, 3-A, and 3-B were released on August 31, 2016, with a 60-day public review and comment period that ended on October 31, 2016. These preliminary chapters included cost and benefit analyses that were associated with the proposed control strategies contained in the June 30<sup>th</sup> version of the Draft 2016 AQMP. A preliminary draft of Chapter 6 containing the environmental justice (EJ) analysis was released on September 23, 2016 and preliminary drafts of Chapters 4, 5, 7 and 8 and Appendix 4-A were released on November 2, 2016.

The Draft Socioeconomic Report—which reflects the October 7<sup>th</sup> version of the Revised Draft 2016 AQMP and consists of all eight chapters, the associated appendices, and an executive summary—was subsequently released on November 19, 2016, with a public review and comment period of 30 days that ended on December 19, 2016.

It should be noted that there is no legal requirement to prepare a socioeconomic analysis for the AQMP. Similarly, there is no required 60-day comment period. The SCAQMD elects to prepare the document to help inform public discussions and the decision making process. Moreover, information used and analyzed in these chapters and appendices, including data, methodology, and analytical results, was discussed at nine Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group meetings between October 2014 and November 2016, four AQMP Advisory Group meetings in 2015 and 2016, three AQMP Socioeconomic Assessment EJ Working Group meetings in 2016, eight regional public workshops and hearings in 2016, and the information was also contained in additional presentations to various stakeholders. Public meeting notices were sent to all advisory and working group members, as well as all AQMP interested parties.

### 21-2

Staff agrees that the right to breathe clean air and economic opportunities are not mutually exclusive. As indicated in Figure 1-1 of the Draft Final Socioeconomic Report, advances in technology and the increased utilization of low-emitting and more energy efficient technologies have made it possible to maintain a healthy economy while improving public health through air quality improvements. However, staff reminds the Commenter that the purpose of the AQMP is not to eliminate poverty; it is to clean the air.

Staff makes every attempt to use the latest and most disaggregated local economic data available for socioeconomic assessments. Moreover, the purpose of the Socioeconomic Report is not to present a detailed forecast of regional economic growth, but to assess the socioeconomic impacts of the Draft Final 2016 AQMP. The sub-regional distribution of projected socioeconomic impacts is discussed in Chapter 5 of the Draft Final Socioeconomic Report. The economic outlook presented in Chapter 1 of the Draft Final Socioeconomic Report and referenced by the Commenter is intended to show a general picture and



anticipated trends of the regional economy as a whole. This outlook is based on the Southern California Association of Governments' (SCAG) growth forecast that underlies its 2016 Regional Transportation Plan/Sustainable Communities Strategy. The forecast is available at the jurisdictional level for the entire SCAG region, which encompasses the four counties of Los Angeles, Orange, Riverside and San Bernardino, as well as Ventura and Imperial Counties. Additionally, Appendix 4-A of the Draft Final Socioeconomic Report includes more details on SCAG's growth forecast, such as the county-level and industry specific job growth rates from SCAG's growth forecast. Documentation on SCAG's 2016 Demographic and Growth Forecast can be found at:

[http://scagrtpscs.net/Documents/2016/draft/d2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscs.net/Documents/2016/draft/d2016RTPSCS_DemographicsGrowthForecast.pdf).

A jurisdictional level employment forecast can be found in this associated document:

<http://www.scag.ca.gov/Documents/2016DraftGrowthForecastByJurisdiction.pdf>.

### 21-3

Based on stakeholder comments on the Revised Draft 2016 AQMP, the Draft Financial Incentives Action Plan was released on December 16, 2016. This Draft Action Plan was prepared to accompany the Draft Final 2016 AQMP and proposed a list of funding principles that include prioritizing incentive funding for disadvantaged communities.

### 21-4

Staff agrees that failure to achieve federal air quality standards by attainment deadlines would lead to delayed air quality improvements and lost opportunities to improve public health via reduced exposure to air pollutants. Staff assumes here that the Commenter is referring to Chapter 1, page 13 of the Preliminary Draft Socioeconomic Report, regarding the potential loss of federal transportation funding for failure to attain NAAQS not being in the baseline of analysis. This paragraph is not intended to contextualize the Plan only in regards to economic consequences. It is meant to provide a general description of the socioeconomic baseline for analysis that is conducted in the Draft Final Socioeconomic Report. The Baseline Definition section in Chapter 1 was included in the report because it is an important area of improvement as recommended by Abt Associates in 2014 and discussed in multiple meetings of the 2016 AQMP Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group.

### 21-5

Staff appreciates the Commenter's recommendation to use CalEnviroScreen, which is consistent with the recommendation made by the SCAQMD's expert consultant Industrial Economics, Inc. (IEc) and their scientific advisors. (IEc's final EJ report is available at: [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/scaqmdfinalejreport\\_113016.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/scaqmdfinalejreport_113016.pdf).)

Chapter 6 of the Draft Final Socioeconomic Report includes an enhanced and expanded EJ analysis. The first step of the analysis is EJ screening, and it employs the CalEnviroScreen methodology and nearly all data and indicators included in CalEnviroScreen v2.0. The screening analysis was used to designate EJ communities in the South Coast Air Basin under many alternative definitions for purposes of sensitivity testing of results derived from the second step of EJ analysis on health risks and benefits distribution. Since this analysis is only conducted in the Basin, a regional CalEnviroScreen scoring approach was used, as was recommended by IEc and also by EJ researchers at the University of Southern California who co-developed the Environmental Justice Screening Method (EJSM) and had a representative on the 2016

AQMP Socioeconomic Assessment EJ Working Group. The regional scoring approach ensures that whatever EJ community designation threshold is chosen (e.g., worst impacted 25% or 50%), it will directly correspond to that percentage of census tracts in the Basin being designated as EJ communities, which would not be the case with a state-wide scoring approach. The two steps of EJ analysis were also conducted to implement one of the major recommendations by Abt Associates in 2014 to further improve the SCAQMD's socioeconomic assessment.

The EJ analysis is based on state-of-the-science tools and methods for understanding impacts on EJ communities. The tools and methods used followed from recommendations from expert consultants, and were reviewed and commented on by STMPR members, as well as the 2016 AQMP Socioeconomic Assessment EJ Working Group members who represented stakeholders from local EJ communities, EJ researchers from several universities in the region, and EJ analysts at other public agencies. Staff would appreciate the Commenter's assistance with obtaining relevant community generated data that could enhance the SCAQMD's socioeconomic analysis.

#### 21-6

The Draft Final Socioeconomic Report uses the REMI model for quantifying the potential regional macroeconomic impacts of implementing the Draft Final 2016 AQMP. The model does not assume that incremental costs of the proposed control measures would impact jobs and employment through business relocation. Instead, the model simulates the regional macroeconomic impacts of implementing the 2016 AQMP via projected changes in industry production costs, industry demand, labor productivity, and enhanced regional amenities as a result of improved public health. Further explanation of this model can be found in Chapter 4 and the supporting appendices.

In response to one of the Commenters' request at the September 27, 2016 EJ Working Group meeting, staff followed up on the questionnaire/survey referenced in this comment letter. In general, SCAQMD does not maintain a systematic survey of potential business relocations. To do so, when facilities apply to inactivate their operation permits, the SCAQMD would need to require the facilities to report the reason(s) of inactivation in such applications; however, there is no such requirement in District rules.

#### 21-7

Subsequent to the submission of this comment letter, a preliminary Macroeconomic Job Impact analysis was released on November 2, 2016 and included in Chapter 4 of the November 19, 2016 version of the Draft Socioeconomic Report. This analysis used a systematic method to quantify regional job impacts. Staff evaluated four different job impact scenarios and found that the implementation of the 2016 AQMP would have a minimal effect on regional job growth. Therefore, it is unlikely that implementation of the Draft Final 2016 AQMP would significantly constrain or slow down economic growth in the region.

#### 21-8

Staff have made a substantial effort to improve the public health benefits analysis of the 2016 AQMP, as was recommended by Abt Associates in its 2014 review of SCAQMD's socioeconomic assessment. The public health benefits results presented in Chapter 3 of the Draft Socioeconomic Report are mainly summary results for the four-county region, though maps of the spatial distributions of disaggregated air quality improvements and estimated avoided premature deaths are also included at the 4km by 4km grid-cell level.



Further summary results of health benefits based on census tract-level estimates and EJ screening are included in the EJ chapter (Chapter 6). These results are based on an analysis which estimates the benefits for every census tract in the basin. As it is not feasible to report the public health benefits for each of the census tracts in the Basin (about 3,500 in total), all disaggregated health benefit and health risk data utilized for the EJ analysis were made available via the SCAQMD's FTP server to all interested parties as requested by several members of the 2016 AQMP Socioeconomic Assessment EJ Working Group. These data include the benefits estimates for all census tracts in the Basin, as well as the spatial distributions of PM2.5 and ozone-related mortality incidence and ozone-related asthma emergency department visits. Staff contact information was also included in the data dissemination notice for any potential inquiries about the data.

#### 21-9

Staff is pleased that the detailed analysis of EJ impacts by alternative EJ definitions is informative to stakeholders and appreciates the feedback on the detailed EJ analysis. Subsequent to the submission of this comment letter, appendices to the EJ chapter were released as part of the Draft Socioeconomic Report (Appendices 6-A & 6-B). The appendices provide further information and detail of the EJ analysis. As shown in the Draft Final Socioeconomic Report, PM2.5-exposure related mortality risk was projected to decrease across all census tracts, and the inequality of mortality risk would also decrease within the Basin and between the EJ and non-EJ communities. At the same time, the ozone-exposure related risk of asthma ED visit among children was also projected to be reduced in all census tracts and the risk reductions would decrease the overall inequality of this particular health risk in the Basin. However, this decrease in overall inequality is a net outcome of an anticipated decrease in inequality within EJ and non-EJ communities, respectively, in combination with an increased inequality between EJ and non-EJ groups.

This decrease in overall inequality of asthma health risk is a combination of a decrease in within-group inequality and an increase in between-group inequality. The result of increased inequality of ozone-exposure related risk of asthma ED visit among children between EJ and non-EJ communities is primarily due to the chemical mechanism of ozone formation in the Basin. This mechanism and the atmospheric dispersion of precursor pollutants from the emission sources lead to greater reductions in ozone concentrations in the downwind inland areas of the Basin, and smaller reductions in the central Los Angeles areas of the Basin. In the meantime, the central Los Angeles areas have a greater proportion of census tracts designated as EJ communities than the less populous inland areas. (See Table 6-2 of the Draft Socioeconomic Report and note that census tracts are designed to have similar population sizes across all tracts.). As a result, while the ozone-exposure related health risk is projected to decline everywhere in the Basin, it would decline slightly less in many of the EJ communities located around central Los Angeles.

#### 21-10

As mentioned in staff response to Comment 21-5, the CalEnviroScreen methodology and data were used in the EJ screening analysis. This recommendation came out of the public process of the EJ working group of which some of the signatories to this letter participated in. The CalEnviroScreen tool utilizes more than one environmental and socioeconomic indicator for EJ screening. This type of methodology implies that the EJ screening results will never directly correspond to any one indicator, such as the MATES IV data mentioned, but will depend on all indicators included. It should however be noted that the MATES IV toxic cancer risk indicator was included in the CalEnviroScreen method in lieu of diesel PM concentrations

included in default CalEnviroScreen 2.0. In that way, the Commenter's concerns regarding the Port freeway-adjacent communities are incorporated into the analysis, by inclusion of the MATES IV data.

Moreover, the analysis uses four alternative definitions for sensitivity analysis, and Alternative Definition 1 includes only three environmental indicators, all related to air quality. The environmental indicators are combined with sociodemographic indicator(s), as the EJ literature shows the latter affects how vulnerable and susceptible individuals are to environmental burdens.

Any census tract that is not designated as an EJ community under a given alternative EJ definition would imply that, compared to other census tracts designated as EJ communities, it is relatively less impacted by the cumulative environmental burdens in that census tract as collectively defined by the various indicators included under each alternative definition. Staff has made available the EJ impact scores calculated based on CalEnviroScreen methodology for every census tract in the Basin under all four alternative EJ definitions.

The EJ analysis included in the Draft Final Socioeconomic Report indeed shows that EJ communities, designated using any of the four definitions based on CalEnviroScreen data and methods, are projected to see a greater decrease in mortality risk than non-EJ communities, which would lead to a decrease in mortality risk inequality between EJ and non-EJ communities (see Tables 6-4 and 6-7 through 6-9).

#### [21-11](#)

Staff agrees the health effects in every year of the plan 2016 AQMP are important. For this reason, staff has conducted an additional analysis, which examined the correlation in air quality scenarios between two milestone years (2023 and 2031). This analysis showed that air quality scenarios are nearly perfectly correlated across these years, which implies that the distributional effect of the public health benefits will be approximately the same in 2023 as in 2031, but of a smaller magnitude in 2023 because the air quality improvements are projected to be smaller. Chapter 6 has been revised in the Draft Final Socioeconomic Report to include this additional analysis.



anyone, to consider this issue. Obviously, if you do not look, then you will not find the information. Moreover, the District must look at the long-term, cumulative impacts of its regulations on economic growth and on jobs, assessing how such impacts contribute to the inability of low-skilled workers to migrate out of poverty due to job suppression in sectors (logistics, manufacturing, etc.) most hindered by SCAQMD regulations. Only this type of analysis will begin to show the true costs of air quality regulations and display a proper comparison of the costs and the benefits associated with the 2016 AQMP.

22 - 2  
(CONT'D)

- We have serious issues with the cost-benefit analysis. The Report indicates the financial costs to comply with the AQMP to be \$2.5 billion a year. It also indicates the actual financial health costs saved would be far less at \$200 million a year. The only way the benefits get to the \$36 billion figure is through the VSL concept, which is not an economic figure, but is supposedly a statement of what people might pay. This does not create a proper economic analysis. Additionally, we dispute the accuracy of the assumption that a one percent increase in income raises VSL by 1.1 percent and believe this greatly overestimates public health benefits of the AQMP.

22 - 3

- There is dispute regarding the SCAQMD's assumption that health benefits continue to be linear for air quality improvements below the NAAQS. There is reportedly no scientific basis for that assumption, but it makes a significant impact on the study's outcome.

22 - 4

- Some commenters have indicated that there is "strong epidemiologic evidence that there is no relationship between PM2.5 and total mortality in California" (See Enstrom and Nebert comment letters on Draft 2016 AQMP). If such comments are valid, then that would significantly impact the socioeconomic analysis since most of the calculated socioeconomic benefits from health are tied to reduced mortality from reductions in PM2.5.

22 - 5

In closing, we appreciate the District's efforts to analyze the economic consequences of the AQMP and continue to encourage the SCAQMD to enhance its analysis to more fully capture the costs and more accurately assess the public health benefits associated with the AQMP. BizFed leadership will continue to help with this endeavor any way we can, and we would like to reorient you to a comment letter that we submitted to the SCAQMD Governing Board on November 6, 2014 regarding the report prepared by Abt Associates (August 14, 2014) following its evaluation of the District's process for socioeconomic assessments. This letter has been attached to these comments for your convenience and provides an overview of our overarching recommendations to enhance SCAQMD's process for preparing socioeconomic assessments.

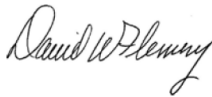
22 - 6

Thank you for considering our viewpoints on this matter.

Sincerely,



Gilbert F. Ivey  
BizFed Chair  
Former CAO,  
Metropolitan Water District



David Fleming  
BizFed Founding Chair



Tracy Hernandez  
BizFed Founding CEO  
IMPOWER, Inc.

# COMMENT LETTER #22—ATTACHMENT A



Strengthening the Voice of Business

Chambers of Commerce  
Alhambra  
Arcadia  
Bell Gardens  
Beverly Hills  
Burbank  
Century City  
Culver City  
El Monte  
Filipino American Los Angeles  
Filipino American South East Corridor  
Glendale  
Greater LAwood  
Greater Los Angeles African American  
Harbor City / Harbor Gateway  
Hollywood  
Irvine/Orange  
Korean American  
LAX Coastal Area  
La Canada Flintridge  
Long Beach Area  
Los Angeles Area  
Los Angeles Latino  
Los Angeles Metropolitan Hispanic  
Malibu  
Manhattan Beach  
Monterey Park  
Pacific Palisades  
Pasadena  
Pomona  
Redondo Beach  
Regional Black  
Regional Hispanic  
Regional San Gabriel Valley  
Rosemead  
San Pedro Peninsula  
Santa Clarita Valley  
Santa Monica  
Santa Monica Junior  
South Bay Association  
Toluca Lake  
Torrance Area  
United Chambers San Fernando Valley  
Universal City North Hollywood  
U.S. Mexico  
Van Nuys  
Vietnamese American  
West Hollywood  
West Los Angeles  
Westside Council  
Wilmington  
Woodland Hills-Tarzana  
Trade Associations and Minority Business Groups  
AIA Los Angeles  
American Beverage Association  
Antelope Valley Board of Trade  
Apartment Association, CA Southern Cities  
Apartment Association of Greater Los Angeles  
Arcadia Association of Realtors  
Asian American Business Women Association  
Asian American Economic Development Enterprises  
Asian Business Association  
Beverly Hills / Greater LA Association of Realtors  
British American Business Council  
Building Industry Association, LA / Ventura  
Building Owners & Managers Association, LA  
Burbank Association of Realtors  
California Apartment Association, LA  
California Cannabis Industry Association  
California Construction Industry and Materials Association  
California Contract Cities Association  
California Grocers Association  
California Independent Bankers  
California Independent Petroleum Association  
California Metals Coalition  
California Small Business Alliance  
Carson Dominguez Employers Alliance  
Central City Association  
Citrus Valley Association of Realtors  
Community Associations Institute  
Construction Industry Air & Water Quality Coalition  
Council on Trade & Investment for Filipino Americans  
Employers Group  
Engineering Contractors' Association  
Entrepreneurs' Organization LA  
Fixing Angelenos Stuck In Traffic (FAST)  
Fontana/Parts  
Gateway to LA  
Glendale Association of Realtors  
Greater LA New Car Dealers Association  
Harbor Association of Industry & Commerce  
Harbor Trucking Association  
Hospital Association of Southern California  
Honor Association of Los Angeles  
Industry Manufacturers Council  
International Warehouse Logistics Association  
LA BIRDS  
League of California Cities  
Los Angeles County Bicycle Coalition  
Los Angeles County Economic Development Corp.  
Los Angeles County Waste Management Association  
Motion Picture Association of America  
NAIOP Southern California  
National Association of Women Business Owners, LA  
National Latina Business Women Association  
Pasadena-Foothills Association of Realtors  
Recording Industry Association of America  
San Gabriel Valley Economic Partnership  
Santa Clarita Valley Economic Development Corp.  
So Cal Minority Supplier Development Council  
South Asian Business Alliance Network  
South Bay Association of Realtors  
South Park Stakeholders Group  
Southern California Golf Association  
Southern California Grantmakers  
Southland Regional Association of Realtors  
Tri-County Association of Realtors  
U.S. Green Building Council  
Valley Economic Alliance  
Valley Economic Development Center  
Valley Industry & Commerce Association  
Valley International Trade Association  
We Care for Humanity  
Western Manufactured Housing Association  
Western States Petroleum Association  
Westwood Village Improvement Association  
Young Professionals in Energy - LA

1000 N. Alameda St. #240

November 6, 2014

Dr. William A. Burke, Chairman, and Members of the Governing Board  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

## RE: ABT ASSOCIATES' REVIEW OF SCAQMD SOCIOECONOMIC ASSESSMENTS

Dear Dr. Burke and Members of the Board:

As you know, BizFed is a grassroots alliance of 125 top business organizations representing 268,000 businesses with 3 million employees throughout Southern California. Our diverse group, which reflects the broader business community, is comprised of major regional business entities and associations, whose members include large and small employers, minority business owners, and job creators from a wide range of industries.

BizFed member's have a strong vested interest in environmental regulatory activity as implemented by the District. The District's socioeconomic assessments represent a significant component of our overall interest.

As discussed further below, BizFed offers the following recommendations:

1. The strategy for implementing Abt's recommendations should be discussed with a broader audience of interested stakeholders - not just the Scientific, Technical & Modeling Peer Review Advisory Group (STMPR).
2. Socioeconomic assessments should be performed by independent third parties.
3. The District should formally implement a "look-back" audit process whereby actual implementation costs are compared with Staff's initial projections, with the estimating methodology recalibrated as necessary.
4. Cost effectiveness should be calculated using the Levelized Cash Flow method.
5. Long Term Health Impact Assessment Ignored.

BizFed has provided various comments in regard to the District's socioeconomic assessments since the adoption of the 2012 AQMP in December, 2012. Our comments are focused on the report and recommendations prepared by Abt Associates (August 14, 2014) pursuant to its evaluation of the District's process for preparing socioeconomic assessments.

Los Angeles, California 90012

T: 213.346.3282 F: 213.652.1802

[www.bizfed.org](http://www.bizfed.org)



BizFed appreciates the leadership of the Governing Board and the District for its responsiveness to our initial suggestion that the District commission an outside party to undertake a thorough review of the process by which the socioeconomic assessments are prepared. We also appreciate the fact that Abt conducted extensive interviews with various stakeholders, including BizFed and some of our members.

BizFed offers the following comments on the Abt report, its recommendations, and the indications of how the recommendations might be implemented:

**1. Summary of Abt recommendations and SCAQMD Staff responses.** A matrix showing Recommendations and responses has been published. Although the matrix is helpful, in the interest of cooperation with stakeholders, and given our long-standing interest in these issues, the stakeholders should have been given the opportunity to comment on the draft. As part of the open and collaborative process for discussing and understanding Abt's recommendations stakeholders should have had the opportunity to discuss before Staff's determined their responses. In fact, in the "AQMP Timeline" presented by the SCAQMD staff in April of 2014, it is specifically noted that there would be an "Implementation Discussion" that would take place over half a year, the 3rd and 4th quarter of 2014. That has not happened. There is still sufficient time to do so, and we request such a stakeholder process be undertaken. Because much of the language in the Abt's recommendations and Staff responses is subjective, we believe that it will be difficult to assess the degree to which the recommendations are implemented, which makes an "Implementation Discussion" even more important.

**2. Preparation of socioeconomic assessments by independent third parties.** BizFed has previously suggested that, for the purpose of avoiding even the appearance of a conflict, socioeconomic analyses should be prepared by third parties. We note that at the hearing for the 2012 AQMP several Board members commented that a peer review would be prudent and perhaps there should be independent analysis by professionals outside the agency; as it can appear biased to perform only an internal analysis of the cost-benefit of proposals. We are concerned that this important principle seems to have been discarded. BizFed still believes an independent third party should prepare the analysis.

**3. Estimates of the costs for controls.** BizFed provided extensive comments to Abt with respect to deficiencies in the manner in which the District typically estimates the cost of implementing proposed rules and control measures. However, few, if any, of our comments seemed to have gained any traction with Abt. One of our comments was that the District should, at the very least, conduct "look-backs" to compare actual, as-built costs to their estimates - and then to refine their estimating methodology as required. Staff has acknowledged the suggestion made at the October 22 meeting of the Home Rule Advisory Group that the District conducts a follow-up audit of actual as-built costs for the purpose of refining their estimating process. We recommend that the District formally implement a "look-back" process.

**4. Calculated values for cost-effectiveness.** BizFed provided specific comments to Abt with regard to cost-effectiveness but, at the very least, our comments were not understood. For example, Abt failed to address the critical distinction between the Discounted Cash Flow (DCF) method (used by the District) and the Levelized Cash Flow (LCF) method, which is used by US-EPA, Cal-EPA, the Cal-EPA agencies, BAAQMD, etc.). Instead Abt noted that the use of either DCF or LCF produces the same absolute ranking of control measures - an

observation that is beside the point. What is most important is the dollar cost per ton of emissions reduced that an affected facility actually incurs to implement a rule, and we believe that calculation can only be accurately made using LCF. We recommend the District calculate cost effectiveness with LCF to reflect the true cost effectiveness for implementing a rule or control measure.

**5. Implementation of the Abt recommendations.** Staff has stated that the District intends to work the Abt recommendations through the Scientific, Technical & Modeling Peer Review Advisory Group (STMPR). We respectfully request that this matter be opened to a broader audience of stakeholders. BizFed has a vital interest in the socioeconomic assessments and we would welcome the opportunity to participate or recommend some new participants for STMPR.

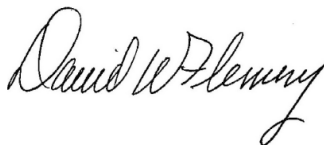
**6. Long Term Health Impact Assessment Ignored.** A key request made to SCAQMD was for an outside consultant to look at the long term impact of its policies on the ability of the huge share of workers with high school or less educations in Southern California to gain jobs leading them out of poverty. This is vital since the sectors most able to accomplish this vital policy objective are the same ones the agency is and wishes to regulate the most heavily. Unfortunately, the district chose to define Abt's work to only look at best practices by similar agencies none of which is looking at impact of their policies in exacerbating the growth of poverty in their jurisdictions. The result was to define the Abt's work in a way that omitted the consultant looking at the agency's impact on the most important socio-economic issue now facing Southern California. Given the increasing challenge between the need to further clean air for public health and the need to lower poverty for public health, it is our continued request that the agency break important new ground with a study having that specific objective.

We appreciate the opportunity to provide the Board with these comments.

Sincerely,



Don St. Clair  
BizFed Chair  
Woodbury University



David Fleming  
BizFed Founding Chair  
Latham & Watkins LLP



Tracy Rafter  
BizFed Founding CEO  
IMPOWER, Inc.

## Responses to Comment Letter #22

Submitted by Los Angeles County Business Federation (BizFed) on October 31, 2016

### 22-1

Staff appreciates comments on the Socioeconomic Report for the 2016 AQMP. Please see staff response to Comment 21-1 regarding the releases of Preliminary Draft and Draft Socioeconomic Report and the public review and comment periods.

### 22-2

Commenter states that SCAQMD staff “must do a better job of measuring the health effects of unemployment that result from its regulations” and “must analyze the health effects of poverty.” Staff reminds the Commenter that the purpose of the AQMP is not to eliminate poverty; it is to clean the air. To the extent, the Commenter wants the District to analyze derivative consequences of jobs presumed to be lost by adoption of the AQMP, the SCAQMD staff did, in fact, consider this request.

The 2014 Abt Associates report referenced by the Commenter documented similar comments made during stakeholder interviews that “the SCAQMD should consider such indirect impacts of air regulations on public health, given the emerging literature on how poverty, unemployment, and other socioeconomic conditions tied to new regulations may affect public health.” Ultimately, no such analysis was put forth among Abt’s final recommendations. At the June 3, 2015 meeting of the Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group, Dr. Jin Huang, Project Manager of the 2014 Abt Review of SCAQMD Socioeconomic Assessment, stated that she did not consider an analysis of health effects of unemployment to be relevant to the SCAQMD socioeconomic assessment (please see the meeting minutes at [http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/stmpr\\_060315\\_minutes.pdf](http://www.aqmd.gov/docs/default-source/Agendas/STMPR-Advisory-Group/stmpr_060315_minutes.pdf)).

Similarly, several economists on the U.S. EPA’s Science Advisory Board – Economy-Wide Modeling Panel did not support the inclusion of health effects of unemployment and other second-order effects when conducting macroeconomic impact modeling or cost-benefit analysis of environmental policies and regulations, due to the current lack of sufficient empirical evidence, the difficulty in establishing causality, and the anticipated small magnitude of such effects (please see the meeting minutes at [https://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/7F1209FEB69099EC85257DFD00605B67/\\$File/Minutes+Oct++22+-+23,+2015-pw.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/7F1209FEB69099EC85257DFD00605B67/$File/Minutes+Oct++22+-+23,+2015-pw.pdf)).

Despite the negative recommendations of the experts, the SCAQMD staff nonetheless took the additional step of commissioning an independent study of this topic by Dr. Erdal Tekin, a subject expert on the topics of health and unemployment and Professor of Public Policy at the American University, research associate at the National Bureau of Economic Research (NBER) and research fellow at the Institute for the Study of Labor (IZA). Dr Tekin’s final report is available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth\\_dec2015\\_012616.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/unemploymentandhealth_dec2015_012616.pdf). Dr. Tekin’s analysis of the health effects of unemployment in the four-county region found that adverse health effects were generally observed among individuals who recently became unemployed, but the overall mortality risk as a public health indicator decreased when unemployment rate rose in the local economy—a finding corroborated by many published studies. Plausible explanations included reduced air pollution due to less



travel and less industrial activities during economic downturns and that more abundant supply of skilled labor in the healthcare industry, such as in nursing homes, could also reduce mortality incidence among the physically more fragile population.

Ultimately, it must be noted that the predicate fact assumed by the Commenter – i.e. that the AQMP will lead to significant numbers of lost jobs – is not supported by the actual jobs analysis. As shown in Chapter 4 of the Draft Final Socioeconomic Report and summarized in its Executive Summary, the projected jobs impact under each of the four impact scenarios analyzed in the report ranges from an average of 9,000 jobs foregone per year to an average of 29,000 jobs gained per year from 2017 to 2031. These are very small job impacts percentage-wise relative to a baseline regional economy of over 10 million jobs (including both payroll jobs and self-employment). Moreover, it was also shown that, under all four impact scenarios, the projected job impact does not alter the region’s long-term job growth in any significant way. The existence of these small impacts on jobs further undermines the Commenter’s claims about the derivative consequences.

Given staff’s modeling results and based on opinions expressed by expert consultants and prominent economists in the nation, staff found no evidence that air quality policies would suppress long-term job growth and prohibit low-skilled workers from migrating out of poverty, and even if so, how such effects could be quantified given the lack of sufficient data and methods.

However, staff also recognizes that the macroeconomic impact analysis may not reflect potential impacts at the facility level. During the rule development process, staff remains sensitive to any potential effect on plant-level operations and employment while taking necessary steps to protect public health from exposure to air pollutants. These commitments are manifested through the SCAQMD’s efforts on many fronts, including public processes to solicit input and comments from all interested parties and continuous outreach to the general public and affected businesses, as well as performing a socioeconomic assessment which the Governing Board must consider whenever the SCAQMD adopts or amends emission reduction rules or regulations.

## 22-3

The methodology used to quantify and value avoided premature deaths from air quality improvements was recommended by the expert consultant Industrial Economics, Inc. (IEc) and reflects the current best practices in the field. Willingness-to-pay (WTP) is a concept from microeconomic theory, and as explained in the IEc memo (available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos\\_november2016/scmortalityvaluation\\_112816.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/scmortalityvaluation_112816.pdf)):

*More generally, economic theory recognizes that, because resources are limited, any decision to use them for one purpose means that they cannot be used for other purposes. Hence the value of a resource can be determined based on the value of its best alternative use; i.e., its opportunity cost. Given this framework, estimates of individual willingness to pay (WTP) provide the conceptually appropriate measure of value for benefits that represent an improvement from the status quo, such as the reductions in mortality risks associated with SCAQMD’s 2016 AQMP. WTP is the maximum amount of money an individual would voluntarily exchange to obtain an improvement, given his or her budget constraint. It indicates the point at which the individual would be equally satisfied with having the good and less money, or with spending the money on other things. This framing mimics the actual trade-offs implicit in regulation. If we choose to spend*

*more on regulations that reduce air pollution risks, we will have less to spend on other goods or services – including other risk-reducing measures.*

*For goods such as mortality and morbidity risk reductions, prices do not exist because they are not directly bought and sold in markets. Instead, economists typically use revealed or stated preference studies to estimate WTP. Revealed preference studies rely on observed market behavior to estimate the value of related nonmarket goods. For example, wage-risk (or hedonic-wage) studies examine the compensation associated with jobs that involve differing risks of death, using statistical methods to separate the effects of these risks from the effects of other job and personal characteristics. Stated preference methods typically employ survey techniques to ask respondents about their WTP for the outcome of concern. They may directly elicit WTP for a particular scenario, or may present respondents with two or more scenarios involving different attributes and prices. In the latter case, estimates of WTP are derived from the way in which respondents choose, rank, or rate alternatives.*

IEc recommended that public health benefits be monetized using the value of statistical life (VSL), which is derived from WTP estimates, and when WTP estimates are unavailable, then valuation can be based on cost-of-illness (COI) estimates. According to another IEC memo, COI estimates “address the real resource costs of incurred cases of illness, injuries, and deaths, rather than the amount of money an individual is willing to exchange for a risk reduction,” and “[...] COI estimates are believed to often understate WTP (e.g., because they ignore the value of averted pain and suffering),” although “it can be difficult to demonstrate the extent to which this is the case.” (The memo is available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos\\_november2016/scmorbidityvaluation\\_112816.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/scmorbidityvaluation_112816.pdf).) Therefore, the portion of monetized public health benefits based on COI estimates (which was phrased as “the actual financial health costs saved” by the Commenter) represents only a small fraction of the avoided real resource costs associated with the air pollution-related health risks, and it represents an even smaller fraction of the overall willingness to pay to avoid both the real resource costs and the pain and suffering associated with the health risks.

Staff used a range of VSL and a range of income elasticities in the public health benefits analysis as recommended by IEC and based on the current economics literature (Robinson and Hammitt, 2016). As discussed in the Draft Final Socioeconomic Report, as with all scientific studies and evaluations, there are various sources of uncertainty surrounding the estimated public health benefits. Staff therefore conducted sensitivity and uncertainty analysis as they relate to important assumptions in the analysis and found that the results continue to demonstrate the significant contribution of cleaner air to public health improvements. This is the case even when staff assumed an income elasticity of zero, or the VSL does not increase with income growth.

Staff considers the analysis used for quantification and valuation of public health benefits to be appropriate and based on current best practices in the field.

#### 22-4

The Commenter stated that there is reportedly no scientific basis that health benefits continue to be linear for air quality improvements below the NAAQS. Contrary to Commenter’s claim, and as discussed in

Chapter 3 of the Draft Final Socioeconomic Report, the linear concentration-response (C-R) relationship is based on the latest scientific evidence, as summarized in the latest Integrated Science Assessments for both PM2.5 and ozone published by the U.S. EPA, and it is consistent with the current analytical approach adopted by the U.S. EPA in its regulatory impact analysis. To address the greater degree of statistical uncertainty associated with the linear C-R relationship at very low concentration levels, staff conducted an uncertainty analysis to examine the distribution of PM2.5 mortality-related health benefits above and below the lowest measured level (LML) of PM2.5 concentration in the study where the selected C-R function was estimated. It was found that 68 to 94 percent of the monetized health benefits would come from pollution improvements above the LML.

#### 22-5

Please see staff response to Comment 12-1.

#### 22-6

Staff appreciates the Commenter's recognition of staff efforts in conducting the AQMP socioeconomic assessment and welcomes the Commenter's offer to provide help to enhance future assessments. The implementation of Abt recommendations and the resultant socioeconomic methodology updates and modeling results were discussed in numerous meetings, including but not limited to meetings of the STMPR Advisory Group, the AQMP Advisory Group, the 2016 AQMP Socioeconomic Assessment Environmental Justice Working Group, regional public workshops and hearings for the 2016 AQMP, and at multiple presentations to various stakeholders. Public meeting notices were electronically mailed to all advisory and working group members, as well as all AQMP interested parties. Staff will continue to use our best efforts to implement Abt's recommendations and to incorporate public input, including that of the Commenter, with the goal of continuously enhancing the SCAQMD socioeconomic assessment in a transparent manner.

## Economics & Politics, Inc.

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Redlands, CA 92373  
(909) 307-9444 Phone  
john@johnhusing.com  
www.johnhusing.com

To: AQMD Board & Staff Date: November 21, 2016  
From: John Husing, Ph.D.  
Chief Economist, Inland Empire Economic Partnership  
Subject: AQMP

---

23 - 1

- As a professional economist, I support the move to incentives as opposed to command and control for meeting AQMP targets. The fact that CARB is using 80% command and control to achieve their results underscores why California has only seen 19.8% of its job growth in blue collar, upwardly mobile sectors from 2011-2016 (*period of recovery & expansion*), while 46.8% of state growth is in sectors paying \$31,000 or less.

- The economic analysis of the AQMP raises several disturbing issues:

23 - 2

- The loss of an average of -11,294 jobs per year for the 15 years from 2017-2031 would total -169,260 jobs destroyed.
  - The AQMP estimate includes 1,256 manufacturing jobs being added each year or 18,840 total. This is due to the belief that the production of devices to clean the air would add such jobs. The contraction is seen in that AQMD has made vast improvements in air quality from 2000-2015. In the four counties that make up the AQMD area, -374,000 manufacturing jobs were lost in this period of substantially cleaner air and regulations to require tools to clean it up. There is absolutely no reason to believe there would suddenly be an increase in manufacturing as more measures are taken to clean the air going forward.
  - The AQMP estimates of job impacts shows only -267 jobs lost per year in wholesale trade (-25), warehousing and transportation (-242) which collectively are logistics (-4,005 in 15 years). Again, this shows the problems with the modeling given the targeted pressure the AQMP program would place on Inland Empire. Alone, the efforts by AQMD and CARB to stop the construction of the World Logistics Center in Moreno Valley will cost the inland area -20,000 jobs if they are ultimately successful. It also belies the efforts by CARB to use increased costs or caps on the expansion of inland logistics facilities. Those tactics would dramatically slow the sector's job growth.

23 - 3

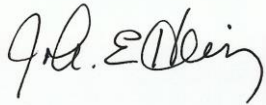
- The AQMP contends that the -169,260 jobs lost due to the program would be far more than offset by the positive impact of 23,036 jobs per year or a 345,540 job gain because of the positive public health consequences. What is not discussed is the negative health impact of 169,260 jobs lost or never created and the negative health impacts this would cause for the relevant workers and their families. Essentially, the agency only looks at its positive impacts of clean air and totally ignores the increasingly negative impacts its strategies will have on public health through exacerbating poverty.

23 - 4

- A look at the logic of AQMP job gains shows it is unlikely they will occur:
  - The AQMP contends that migration of economic activity and workers would occur due to a positive healthy environment. However, there is no reason to believe this would happen. After all, the AQMP is part of a national policy to clean the air. Why would activity migrate to Southern California because of cleaner air in this area if the rest of the U.S. is receiving the same benefits. Also, why would activity move to the area, when the costs of doing business and the regulatory environment in Southern California are so much worse than the rest of the U.S.
  - The AQMP contends there would be greater spending by consumers of money no longer needed for health difficulties. Here, the fundamental myopia of the modeling is again underscored. The modeling shows the unintended consequence of -169,260 jobs lost or not created as a result of the AQMP. It does not look at the resulting pool of families left in poverty with the negative health effects and health costs that would cause for those families and the economy. This omission is particularly acute in light of the fact that health researchers like those at the Robert Wood Johnson Foundation and University of Wisconsin School of Public Health indicate that the health risks caused by poverty far outweigh those caused by the environment.
  - The AQMP contends there would be greater labor productivity with a healthier labor force. However, there are so many factors that go into labor productivity such as business investment in more efficient processes, or lack thereof, it takes considerable gall to believe productivity would greatly enhanced due to AQMD policy. That is particularly true given the share of the labor force left behind in poverty as a result of the agency's actions.

23 - 5

- Unless the Trump Administration fundamentally changes EPA air quality goals, AQMD may continue to be under legal threat to move ahead with its regulatory and incentive programs to clean the environment. However, the agency should quit using biased economic analysis to put the best face on their policy outcomes. Yes, it would accomplish the next iteration of clean air. However, at a minimum the agency should be honest that their actions are increasing coming at the expense of economic activity with the preponderance of the impact on the health of the least educated and poorest families among us. That is the true social justice impact of the rush to meet air qualities goals that delaying another decade would likely see technology accomplish without the pain and suffering.



## Responses to Comment Letter #23

Submitted by Inland Empire Economic Partnership on November 21, 2016

### 23-1

As stated throughout the Draft Final 2016 AQMP and its associated documents including the Draft Final Socioeconomic Report, the 2016 AQMP is a regional blueprint designed to achieve federal air quality standards in the South Coast Air Basin and Coachella Valley by seeking emission reductions from stationary and mobile sources through both command-and-control regulations and financial incentives. The purpose of the incentive programs is to help accelerate the deployment of zero and near-zero emission technologies that will go above and beyond the emission limitations set in existing rules.

The comment claims that it is because of CARB's heavy reliance on command and control that the blue collar job growth rate has only been at 19.8 percent, much slower than in lower-paying sectors. However, the comment does not provide evidence or support of this claim and staff was unable to review and verify the data, assumptions and methodologies used to establish the claimed relationship. The main drivers among all potential factors that could affect the macroeconomic trends can be usually identified by rigorous econometric tests. One of those main drivers is innovation of labor-substituting technologies such as automation. However, staff has not yet been able to identify empirical evidence in the peer-reviewed economics literature that unambiguously shows a causal relationship between clean air regulations and regional job growth trends.

### 23-2

As pointed out in Comment Letter #26 submitted by Steve Levy, who is a professional economist and Director and Senior Economist of the Center for Continuing Study of the California Economy, the projected changes in regional job counts per year are *not additive*. The non-additivity of projected job impacts was also emphasized by staff at the November 3, 2016 meeting of the Science, Technical and Modeling Peer Review (STMPR) Advisory Group, which was open to public participation and the meeting notice was electronically mailed to all 2016 AQMP interested parties.

REMI is a recursive model that simulates policy impacts year by year. The number of jobs foregone or added for a particular year is the result of a comparison between the job counts in the baseline economy (i.e., baseline scenario) and the job counts in an alternative economy where a policy would take effect (i.e., policy scenario). Let's consider an illustrative example, where the only policy-induced job impact is that five construction jobs that are projected to be added to the baseline economy in 2017 would end up not being created under the policy scenario simulation. And as the policy impact continues, these same five jobs still will not be created under the policy scenario in 2018, 2019, and so on. As it is those same five jobs that are not being created, it would be incorrect to claim that there will be 15 jobs foregone after three years in 2019; instead, the total policy-induced job impact stays at five jobs foregone in 2019. (Moreover, as noted in the Draft Final Socioeconomic Report, the term "jobs foregone" refers to either losses of existing jobs or forecasted jobs not created.)

Similarly, the projected change in the number of jobs per sector is also non-additive across years, and no matter which sector or which policy impact scenario is examined, the change represents a difference of less than one percent from the baseline job forecast. Contrary to the commenter's claim, staff did not

state any “belief” that job increases in the manufacturing sector are solely due to increased demand for cleaner equipment and technologies. As discussed in Chapter 4 of the Draft Final Socioeconomic Report, staff explained that any potential positive job impact due to such demand increases would “highly depend on the location(s) of the potential suppliers.” Moreover, the REMI model captures the direct, indirect and induced effects of a proposed policy, and any job impact projected by the REMI model is the net result of all effects.

Regarding manufacturing job losses, Figure 1-3 of the Draft Final Socioeconomic Report clearly shows that the decline in manufacturing employment is not specific to the four-county region but it is exhibited also at the state and national levels. Economic studies have linked the nationwide manufacturing job losses largely to technological changes and global trade. Moreover, as mentioned in the staff response to Comment 23-1, staff has not been able to identify peer-reviewed economic studies that found clean air regulations as a driver of regional job growth trends.

Regarding the Commenter’s claim that logistics sector job growth in Inland Empire would be dramatically slowed by SCAQMD and CARB efforts, it should be noted that the many transportation-related industries with on-road fleet operations and other industries that utilize off-road mobile source equipment (e.g., forklifts) are expected to be able to benefit from incentive programs that will reduce mobile source emission reductions by accelerating the deployment of zero and near-zero emission technologies. Moreover, staff agrees with the Commenter’s quoted opinion in the December 4, 2016 Los Angeles Times article that “[t]here are a lot of people doing traditional warehouse work, but that will change,” as “[e]verything is being automated.” (The article is entitled “Warehouses promised lots of jobs, but robot workforce slows hiring.”) Indeed, automation will most likely be the driving factor that determines future job growth in the warehousing industry, a key component of the inland region’s logistics sector.

### 23-3

Please see staff response to Comment 23-2 regarding the non-additivity of annual job impacts. Contrary to the Commenter’s claim, Chapter 4 of the Draft Final Socioeconomic Report includes a preliminary discussion on existing studies and recent findings regarding the public health effects of unemployment. Regarding the Commenter’s claim that clean air regulations would negatively affect public health through exacerbating poverty, please see staff responses to Comments 1-2—submitted by the same commenter—and 22-2 for a detailed response.

### 23-4

The Commenter claims that the rest of the U.S. would receive the same clean air benefits because the Draft Final 2016 AQMP is part of a national policy to clean the air. However, while the 2016 AQMP is designed to provide a path to clean air goals and address federal Clean Air Act (CAA) requirements for ozone and PM2.5 standards, air quality improvements across the nation would not be made at the same pace. Moreover, as the densely populated South Coast Air Basin still has some of the most polluted air in the nation, the magnitude of clean air benefits as a result of implementing the 2016 AQMP are less likely to occur in the rest of the nation. As the proposed 2016 AQMP control measures are implemented, the region—which has some of the most polluted air in the nation—is expected to catch up, or at least narrow the gap, with the rest of the nation in terms of clean air. In the REMI model, improvements in the region’s air quality relative to the rest of the nation were modeled as an increase in regional amenity, parameterized to be relative to the rest of the nation, which, based on peer-reviewed economics literature was shown to increase economic in-migration. It should be also noted that public health benefits



are not the only modeling input in staff's REMI analysis. Other inputs, such as increased production costs that would be incurred by the directly affected industries as a result of implementing the Draft Final 2016 AQMP, were also included, and they produced counteracting effects on the final simulated results. Additionally, in order to provide upper and lower bounds of the job impact assessment, the Draft Final Socioeconomic Report included four different policy impact scenarios, two of which did not take into account public health benefits.

Next, as discussed in the staff response to Comment 23-2, the REMI modeling analysis of the policy impact of the 2016 AQMP did not result in an impact of 169,260 jobs lost as claimed by in the comment. Instead, staff's REMI analysis showed minimal changes in the region's long-term job growth. Moreover, as discussed in staff responses to Comments 1-2 and 22-2, and 23-1, and repeated in responses to many comments contained in this letter, staff relied on the current state of knowledge and evidence in the economics literature. The comment does not provide evidence or support of claims that the 2016 AQMP or environmental regulations in general would affect poverty in the region.

Finally, staff agrees with the Commenter that there are many factors that affect labor productivity in an economy. Epidemiological studies have demonstrated that exposure to air pollution can cause morbidity symptoms and result in work and school absences (Ostro 1987 and Gilliland et al. 2001). Based on these findings, labor productivity or output per job in REMI was modeled to increase as a result of fewer work absences that are related to the workers' own illness or the need to take care of sick children at home. The peer-reviewed economics literature provided additional evidence that better air quality can directly increase worker productivity (e.g., Zivin and Neidell 2012).

#### 23-5

The Commenter's attempts to denigrate the SCAQMD socioeconomic assessment lack merit. The socioeconomic assessment uses the state-of-science methodologies and most current and available data; moreover, local data were used where available. The Draft Final Socioeconomic Report implements many recommendations by the 2014 Abt Associates Review of the SCAQMD socioeconomic assessment, follows detailed recommendations by expert consultants to conduct public health and environmental justice analyses, and to sensitivity test REMI job impacts. It incorporates comments and suggestions by the STMPR advisors who were appointed by the SCAQMD Governing Board, and it also reflects public input to the socioeconomic analysis that were provided to staff at numerous public meetings.

Additionally, as emphasized throughout the Draft Final 2016 AQMP and its related documents, the 2016 AQMP is designed to provide a path to clean air goals and address federal CAA requirements for ozone and PM2.5 standards. The CAA requires attainment of the standard to be achieved as "expeditiously as practicable" but no later than the attainment deadlines (see Table 1-1 of the Draft Final Socioeconomic Report). Failure to submit a plan, comply with required plan provisions, or implement an approved plan to meet health-based standards within the required timeframes could result in sanctions from the federal government, including but not limited to restrictions on federal highway funds granted for the region and more stringent emission offsetting requirements for new businesses and operations in the region. Therefore, delayed attainment of federal standards by a decade, as proposed by the Commenter, would not only be illegal but it would also negatively affect the region's transportation infrastructure and discourage new business activities.

**COMMENT LETTER #24—JOHN HUSING EMAIL, DECEMBER 5, 2016**

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**From:** John Husing [<mailto:john@johnhusing.com>]

**Sent:** Monday, December 5, 2016 12:21 PM

**To:** Angela Kim <[akim@aqmd.gov](mailto:akim@aqmd.gov)>

**Subject:** Re: SCAQMD - Draft Final 2016 Air Quality Management Plan Release

24 - 1

It would be appreciated if you could identify any research showing the downside health care cost impacts of the long term loss of jobs from the accumulation of regulation on blue collar sectors stemming from increased public health difficulties for marginally educated workers. This was not an issue earlier, but increasingly it would appear to be important given that the level of regulation is now increasingly creating a trade off of between ever cleaner air and jobs for this at-risk population.

John Husing

Chief Economist

Inland Empire Economic Partnership

## Response to Comment Letter #24

Submitted by Inland Empire Economic Partnership (IEEP) on December 5, 2016

### 24-1

The Commenter requested staff to “identify any research showing the downside health care cost impacts of the long terms loss of jobs from the accumulation of regulation [...].”

However, as shown in Chapter 4 of the Draft Final Socioeconomic Report and summarized in its Executive Summary, the projected jobs impact under each of the four impact scenarios analyzed in the report ranges from an average of 9,000 jobs foregone per year to an average of 29,000 jobs gained per year from 2017 to 2031. These are very small job impacts percentage-wise relative to a baseline regional economy of over 10 million jobs (including both payroll jobs and self-employment). Moreover, it was also shown that, under all four impact scenarios, the projected job impact does not alter the region’s long-term job growth in any significant way.

Moreover, Chapter 4 of the Draft Final Socioeconomic Report also discusses the evidence in the existing economics literature, or the lack thereof, on the relationships between environmental regulations and macroeconomic job impacts. Additionally, it includes a preliminary discussion on the health effects of unemployment, whether related to air quality regulations or not.

For further discussion, please see staff response to Comment 1-1.

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DATE: December 3, 2016

TO: **The AQMD Socioeconomic Evaluation Team**

FROM: Stephen Levy

SUBJECT: Review of Socioeconomic Report Draft Released November 16, 2016

**1. Executive Summary**

25 - 1

The key findings are strongly supported by the evidence in the following chapters and appendices. The report has noticeable improvements in accessibility and transparency. My comments focus on increasing clarity and readability.

I have two suggestions that would help me understand the findings better and could help other readers.

In the Executive Summary provide a brief description of what incentives mean, such as cash assistance to convert to lower emission vehicles. Incentives are a large portion of total costs and clarity will help readers understand the concept. It is explained better in later sections but some readers focus on the summary section.

Second, as I am not a scientist, I found the language and connections between ozone, NOx and PM2.5 not always clear.

25 - 2

The remainder of comments in this section relate to the use of historical and forecasted jobs data and related impacts. I offer these suggestions in the hope they will avoid confusion and at the same time underscore that the District used the correct methodology in integrating the SCAG regional growth forecast projections into the analysis.

The first issue deals with the terms "employment" and "jobs". Often throughout the report the term employment is used when what is meant is jobs. The term employment is a technical term used by the Bureau of labor Statistics (BLS) and the California Employment Development Department (EDD) to describe the number of employed residents

25 - 2  
(CONT'D)

(workers) living in a particular geography. Total employment differs from total jobs in two respects—1) It refers to workers not jobs and does not include the fact that a worker can hold more than one job and 2) it refers to where the worker lives not where he/she works.

In most of the draft text and tables there is a correct reference to total jobs and changes in the number of jobs. But in some cases the phrase “total employment” is used instead of the correct usage “total jobs”. The first paragraph on page ES-4 is one example. Sometimes it is clear that employment means jobs but there are other places in the draft where it is more ambiguous.

I recommend replacing employment with jobs when that is what is meant.

25 - 3

The second issue relates to clearly explaining the difference between the measure of jobs used in the REMI model and model results and the measure of jobs used by EDD, BLS and SCAG. There is a good explanation on page 4-A-2 in Appendix 4-A. I suggest having a place here or in Chapter 4 referenced in the executive summary that discusses the differences before readers try and understand the various tables and figures.

The REMI job measure is larger than that used by BLS and EDD. For example footnote 10 on page ES-4 states there were more than 10 million jobs in the District area in 2014. This is based on a measure of jobs developed by the Bureau of Economic Analysis (BEA) and used in the REMI model. The EDD estimate of jobs for 2014 is slightly under 8 million. The main difference as explained in Appendix 4-A is the way the two sources measure self-employment.

My recommendation is to use the EDD measure of jobs when describing historical estimates and trends and in describing the SCAG forecast. The EDD measure and used by SCAG is the one familiar to readers, not the REMI/BEA measure.

This will come up in several places in the comments below.

The MIT review, adopted by the District, requires that the SCAG growth forecast is the basis for analyzing job and population impacts as noted in footnote 11 and it has always been the practice of the District to do so.

Appendix 4-A describes how this is accomplished. The REMI model forecast of jobs is adjusted at the industry level to reflect the job growth rates forecast by SCAG. The job impact estimates in Chapter 4 use the REMI job measure embedded in their model **but the relative job impacts and percentage changes from the baseline are an accurate reflection**

25 - 3  
(CONT'D)

of the impact of the AQMP and are not affected by the use of the REMI job measure as the growth rates reflect the SCAG forecast.

The transparency and readability of the draft would be improved by providing base year and 2031 estimates and projections of total jobs and population for the District area from SCAG.

The adopted SCAG region growth forecast has total population growing from 8,075,000 in 2015 to 22,138,000 in 2040 and total jobs growing from 8,006,000 in 2015 to 9,872,000 in 2040. I am sure that SCAG can provide estimates for the AQMD region and projections to 2031 if requested as they have county and small area data already provided to AQMD.

## 2. Introduction

The introduction makes substantial progress in improving transparency and clarity. The sections outlining the model improvements in the 2016 analyses, the incorporation of stakeholder feedback and the use of the latest scientific evidence provide a credible foundation for the findings. The explanation of the concept of the baseline is helpful and clarifies an ambiguity from past analyses.

Figure 1-1 is an important chart and deserves more attention. The remainder of the draft with relation to job impacts is filled with table after table and figure after figure showing job impacts of usually much less than 1% over 15 years.

25 - 4

At a minimum a table showing the %s related to each row on the figure would be a helpful addition to those who cannot quickly understand graphs or are interested in the actual % changes. A multisensory approach is always helpful for transparency and readability.

The figure shows an important relationship—that the region has added people, jobs and output while air quality has improved. This finding is worth a paragraph or more of space in the introduction as it lends credibility to the findings that such progress can be achieved under the 2016 AQMP.

Hopefully the final figure will say total jobs not total employment.

I am guessing that O3 is ozone but it is not labeled in the figure or text.

On page 1-2 I see reference to NOx in the text and ozone and PM2.5 in the table. That is confusing to me as to how NOx and ozone/PM2.5 are related.



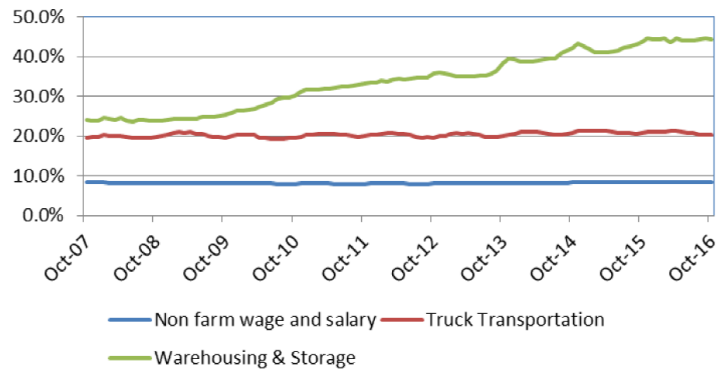
I have four comments on the section related to industries potentially affected by the AQMP:

- 1) This is an important subject to discuss
- 2) The section was written before the findings reported in Chapter 4 that economic impacts are very small. Reference to that finding would be helpful in this Chapter
- 3) The use of job forecasts from EDD for 2016-2022 should be replaced by the forecasts from SCAG for the period ending on 2031.
- 4) This would be a good place to insert an historical chart building on figure 1-1. I show one below for illustrative purposes.

There was discussion at an STMPR meeting about the impact of air quality regulations on job trends in the Riverside—San Bernardino metro area. The graph below compares job growth overall and in the trucking and warehouse sectors between the metro area and the state for the past nine years. The metro area share of overall California non-farm wage and salary jobs increased from 8.3% to 8.4% with a gain of 104,300 jobs. The share of trucking jobs increased from 19.5% to 20.4% with a gain of 3,300 jobs. And the metro area share of warehousing jobs grew from 24.0% to 44.6% with an increase of 28,100 jobs or more than double the starting job level.

25 - 5

**Riverside-San Bernardino Share of CA Jobs**



With regard to point 3 above

25 - 6

SCAG developed industry forecasts that are used in the REMI modeling as explained in Appendix 4. Yes the draft at the top of page 1-5 refers to and uses very old EDD forecasts for 2012-2022. They are out of date, their usage violates the agreement to use SCAG job forecasts and the ending period of 2022 is not helpful in an analysis ending in 2031.

25 - 6  
(CONT'D)

I realize these were inserted as a placeholder in early drafts but if staff wishes to inform readers about job growth forecasts in these sectors, the SCAG forecasts are appropriate to use.

The entire text and figures on pages 1-5 and 1-6 should be replaced with SCAG forecasts to 2031 to help readers. Very old forecasts (EDD is now updating) and ending in 2022 are not reflective of the SCAG forecast or helpful.

All discussions of job growth to 2022 in the remainder of the section should be replaced by SCAG forecasts to 2031.

25 - 7

In addition I do not find the wage and output statistics helpful and as in other sections, some streamlining of the text to increase readability would be helpful.

The main point of the section is to identify sectors that are potentially affected by the AQMP and with the inclusion of SCAG job forecasts, this will be achieved.

### 3. Incremental Costs

25 - 8

I submitted a number of clarifying questions to an earlier draft and I find most of them addressed and clarified so a lay reader can better understand the methodology and meaning of terms. Thank you. The clarification of remaining incremental costs and the updated assumptions with regard to CARB mobile source initiatives and their relation to the AQMP analysis are particularly helpful.

After the incremental cost table 2-1 ending on page 2-5, I think it would be helpful to compare the \$848.5 million annual costs to the average GDP of the region to show readers a rough idea of what percentage of GDP these costs represent.

25 - 9

Perhaps I missed it in the text but I was looking for a little more detail on how the incentives would work (perhaps owners would be given funds toward the replacement cost of lower emitting vehicles) and where the incentive funding would come from.

25 - 10

While the District is free to make their own assumption as to the incidence of the government incentive spending, I find it doubtful in practice that other programs would be cut or staff reduced. Moreover, the incidence of these cuts if they occur is interesting. So what would be the effect of cutting health or education spending to fund incentives? I think we can do better than assume that the impacts are measured by job cuts in the



**25 - 10**  
**(CONT'D)** [ public sector. I expect residents would not like the impact of any service cuts resulting from reallocation of state funds to fund incentives for emission reduction.

**25 - 11** [ On page 2-9 the draft repeats the use of outdated and non SCAG job forecasts from EDD ending in 2022 not 2031. Please correct this reference. Also see the chart presented above re job trends in the goods movement sector.

**25 - 12** [ On page 2-11 there is a figure showing annual incremental costs ranging from \$1.4 billion in 2017 to \$2.7 billion in 2031. All of these annual costs are above the \$848.5 million average costs shown on page 2-5. Can the final text explain how these two measures are related and should be interpreted?

#### 4. Public Health and Other Benefits

**25 - 13** [ Thank you for the graphic better explaining the value of a statistical life and how it is aggregated from willingness to pay.  
Is there a way to insert county names in Figure 3-1?

**25 - 14** [ I think more explanation of Table 3-3 would helpful. One number that looks strange is that the table appears to say that 2000+ premature deaths will be avoided, more than 100,000 school days protected but only 89-167 fewer hospital admissions. Maybe I am missing something but that looks weird to my eye, especially given the language in the first paragraph on page 3-8 talking about large numbers of avoided hospital admissions.

**25 - 15** [ Figure 3-4 is exactly the right approach to explaining the benefits of avoiding premature death BUT isn't \$500 too high and aren't there 18,000,000+ residents in the region? Is there a more realistic example? \$500 seems like a lot to most people. Can you make an example that ends up with the estimate on Table 3-4?

**25 - 16** [ The sensitivity analysis is helpful in concept and I hope the idea of a range is used often where applicable.  
On page 3-13 you might be lowest measured level in the title as I had to search a bit and the term was not familiar to me.

**25 - 17** [ I support the inclusion of benefit estimates for the items covered on pages 3-14 through 3-16. The omission of these benefits in this analysis does support the report conclusion that benefit estimates were made conservatively.

25 - 18 [ I would remove the section on unemployment impacts. **The analysis documents that in fact the 2016 has no impact on regional unemployment.** So the inclusion of this section is open to misinterpretation and, while it might be of interest to some stakeholders, it is not helpful to include material that is factually not related to the AQMP in a socioeconomic impact analysis of that plan.

#### 5. Job and Other Macroeconomic Impacts

25 - 19 [ I have reviewed the analysis and support the findings of job impacts mostly well less than 1% of baseline forecast values.  
On all relevant tables I would insert the base year job estimate in place of or in addition to the 2023 column. For those who work better with actual numbers than those very small percentages in the final column, a comparison of base year and changes in job levels would be helpful.  
Similarly in Figure 4-1 it would be helpful to show data as % changes instead of or in addition to the absolute numbers.

25 - 20 [ It would also be helpful to explain clearly that the REMI model works in a way that added or foregone jobs change the population slightly and do not affect overall unemployment levels even if the impacts were larger.

25 - 21 [ Jobs foregone is a difficult concept and readers may need help in understanding this is different than a firm laying off workers.  
As a professional economist it is hard for me to judge how well the chapter material will be understood by lay readers. If there is feedback on difficulty understanding some results or concepts, I am happy to work with staff on expanding explanations.

#### 6. Sub-Regional Distribution of Impacts

25 - 22 [ Figure 5-3 is labeled employment and Figure 5-4A is labeled jobs though I think/hope they refer to the same concept.

25 - 23 [ I am not sure that all of the Figure 5 charts are necessary and may interrupt the flow for the reader but that is a minor point.  
On Table 5-1 it is hard to gauge the importance without knowing the base income and income per capital values so the reader can know the % change. Is \$44 per capita a lot or like many of the impacts in the less than 1% range?

25 - 23  
(CONT'D)

The same comment applies for Figure 5-6. People tend to look at \$millions and think that is a lot when the base value it is compared to in many \$billions.

The same comments apply to tables 5-2 and 5-3 and Figure 5-7.

Finally in Figure 5-8B the % impacts are shown.

I think readers would be helped if this % impacts estimate were shown generally for all items in Chapter 5.

#### 7. Environmental Justice

25 - 24

The major findings on Tables 6-5, 6-6 and 6-7 are powerful and should receive more prominence in the text and summary.

While it is a little counterintuitive one thought is to reverse the order of the chapter. Another approach would be to have a short summary section at the top.

The finding that the AQMP has greater benefits for low-income communities and those susceptible to environmental health risk is an important and positive outcome of the AQMP evaluation.

25 - 25

My preference in language would be to be more quantitative in describing EJ criteria and not use words like disadvantaged or vulnerable, which are subject to misinterpretation.

25 - 26

I think the race/ethnicity criteria should be carefully explained as to why that is important. Is it because of race alone or because African American and Latino residents **on average have lower incomes than the general population, which is true.**

25 - 27

I find the discussion starting on page 6-11 far too technical for me to understand and I have participated in all the STMPR meetings.

#### 8. CEQA Alternatives

25 - 28

On Table 7-3 it appears that all of the alternative scenarios have roughly similar and quantitatively small impacts.

I did not see that conclusion stated in the chapter.

#### 9. Summary

25 - 29

The summary is excellent.

25 - 29  
(CONT'D)

I wonder if in the final draft, points made in Chapter 8 that are not already in the Executive Summary could be included there.

Chapters 1 and 8 cover many similar points and I wonder if they could be combined at the front of the report.

## 10. Appendices

### Appendix 4-A REMI Baseline Adjustments for the 2016 AQMP

The 2016 economic analysis follows a longstanding agreement to reflect the regional and sub regional job and population growth forecasts prepared by SCAG.

It would be helpful to readers to show the baseline SCAG forecast in actual numbers instead of just growth rates. That data is available as explained in Appendix the bottom of page 4-A 2.

For the record I assisted SCAG in the preparation of the 2016 regional growth forecast.

The decision to adjust REMI by using SCAG growth rates not actual levels is correct given that REMI uses a different jobs data measure, one not used by BLS, EDD or SCAG. But that is not a reason to withhold reporting of SCAG baseline and forecasted job levels, which would help readers accustomed to seeing jobs reported in the EDD/BLS measure.

25 - 30

25 - 31

Figure 4-A 3 should be of concern to the District staff as it shows a REMI job growth forecast (unadjusted) as virtually no growth until 2031, a level that will be exceeded when the 2016 AQMP is voted on for adoption.

I do not know if the great discrepancy between the baseline (default) REMI forecast and the SCAG job forecasts affects other aspects of the model but it is quite a striking discrepancy.

**The REMI job forecast would have the District Area growing much more slowly than the nation to 2031, a finding that is inconsistent with recent history and the SCAG forecast.**

25 - 32

On page 4-A 11 it would be helpful to note that both the REMI and SCAG model relate population growth to job growth. Higher job growth levels imply more migration into the region and vice versa.

Given that relationship it is strange to see a REMI population forecast similar to SCAG's given that the REMI model forecasts virtually no job

25 - 32  
(CONT'D) [ growth and both models are supposed to use similar birth and death rates.

## Responses to Comment Letter #25

Submitted by Center for Continuing Study of the California Economy (CCSCE) on December 3, 2016

### 25-1

Staff appreciates the Commenter's statement regarding the findings and improvements in AQMP socioeconomic assessment, and all suggestions made in this letter to help further increase clarity and readability of the Draft Final Socioeconomic Report.

Regarding the meaning of incentive programs, staff agrees that such incentives could include cash assistance to convert to a lower emission vehicle or piece of equipment. As is mentioned in the beginning of the Executive Summary that the purpose is "to help accelerate the deployment of zero and near-zero emission technologies." And, it was mentioned on the next page that "eligible industries and consumers can use [incentives] to offset the cost of purchasing cleaner technologies." More information on how incentives programs would work and the potential funding sources and opportunities can be found in the Draft Financial Incentives Funding Action Plan for the 2016 AQMP at <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/draftfinancialincentivefunddec2016.pdf>.

Finally, a footnote has been added in the beginning of Chapter 1 to clarify that NO<sub>x</sub> is a precursor to ozone and secondary PM<sub>2.5</sub> formation.

### 25-2

Staff appreciates the Commenter's suggestions and the acknowledgement that staff "used the correct methodology in integrating the SCAG regional growth forecast projections into the analysis." Following the Commenter's suggestions, the Economic Outlook section in Chapter 1 of Draft Final Socioeconomic Report, which previously used California Economic Development Department (EDD)'s long-term projections (2012-2022), has been revised with the SCAG's Growth Forecast from its 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). All job statistics based on EDD's job estimates have been clarified as "payroll jobs," as opposed to "total jobs" that are used in REMI and based on the U.S. Bureau of Economic Analysis data that include both payroll jobs and self-employment. Additionally, "employment" was replaced by "jobs" wherever it refers to job counts as opposed to the number of workers.

### 25-3

Staff followed the Commenter's suggestion to use the EDD's measure of jobs when describing historical estimates and SCAG's forecast in describing the projected long-term job growth trends. As mentioned in staff response to Comment 25-2, staff also made a clear distinction between total and payroll jobs. Appendix 4-A of the Draft Final Socioeconomic Report includes a detailed description of SCAG's data and figures and tables that provide depictions of SCAG's growth forecast at the more aggregate levels.

### 25-4

Staff again appreciates the Commenter's acknowledgement of progresses made in the AQMP socioeconomic assessment. For clarity, a note was added below Figure 1-1 to clarify that O<sub>3</sub> is the chemical expression of ozone; moreover, as mentioned in staff response to Comment 25-1, a footnote

has been added at the beginning of Chapter 1 to clarify that NOx is a precursor to ozone and secondary PM2.5 formation. Staff believes that Figure 1-1 has been adequately referenced when discussing air quality improvements in the text. Staff also believes that adding an annualized percent change table next to Figure 1-1 could detract from the graph's quick take-away message in the opening paragraph's discussion and therefore did not make this suggested addition.

#### 25-5

Staff agrees with the Commenter that it is important to discuss the economic outlook of the potentially affected industries due to implementation of the Draft Final 2016 AQMP.

The reference to the small job impacts of implementing the proposed control measures, as shown in Chapter 4, is already mentioned in the Executive Summary and reiterated in the summary chapter (Chapter 8).

Please see staff response to Comment 25-2 regarding replacing EDD forecasts with SCAG forecasts.

In order to provide context in the discussion of EDD's current (November 2016) payroll jobs in affected industries (Chapter 1), the industry's share of total payroll jobs in the region has also been added in the text if it is greater than one percent. Additionally, a preliminary discussion of regulations, job impacts, and public health is included at the end of Chapter 4 of the Draft Final Socioeconomic Report.

#### 25-6

Please see staff response to Comment 25-2.

#### 25-7

Staff believes that the inclusion of wage and output statistics provides a better context for the discussion of the potentially affected industries, which was requested by other stakeholders.

#### 25-8

Staff appreciates the Commenter's acknowledgement of staff's efforts to revise earlier versions of the socioeconomic report in response to questions and comments received from the Scientific, Technical and Modeling Peer Review (STMPR) advisors and the public. Additionally, staff agrees that comparing the estimated cost of implementing the Draft Final 2016 AQMP to the region's GDP is useful and has included it in Chapter 2 of the Draft Final Socioeconomic Report.

#### 25-9

Please see staff response to Comment 25-1 regarding the proposed financial incentive programs in the Draft Final 2016 AQMP.

#### 25-10

Please see staff responses to Comment 20-8 regarding the incentive funding scenarios and the potential economic impacts under alternative scenarios.

#### 25-11

Please see staff responses to Comments 25-2 and 25-5.

#### 25-12

Staff has provided more information about Figure 2-1 in Chapter 2 of the Draft Final Socioeconomic Report to enhance clarity.

#### 25-13

Staff appreciates the Commenter's acknowledgement of improved clarity in AQMP socioeconomic assessment. Following the Commenter's suggestion, county names have been included in Figures 3-1 and 3-3 of the Draft Final Socioeconomic Report.

#### 25-14

Further explanation has been added to the text to describe the emergency department visits and hospital admissions as shown in Table 3-3 of the Draft Final Socioeconomic Report. Additionally, for better clarity, Table 3-3 has been revised to group the Hospital Admission (HA) endpoints together for each pollutant.

The total annual estimated amount of avoided hospital admission from all endpoints considered (asthma, cardiovascular, respiratory, and ischemic stroke) is about 700 per year on average.

#### 25-15

A revised example has been created which is similar in scale of the four-county region's population.

#### 25-16

As summarized in Chapter 8 of the Draft Final Socioeconomic Report, sensitivity analyses were conducted for health benefits in Chapter 3, macroeconomic modeling of non-market benefits in Chapter 4, macroeconomic modeling of different incentive funding scenarios in Chapter 4, and EJ community definitions and distributional analysis in Chapter 6. Additionally, the section heading for the Lowest Measured Level (LML) analysis was revised to improve clarity, and the concept of LML is explained on page 3-13 of the report.

#### 25-17

Staff agrees that omission of quantified public welfare benefits of air quality improvements supports the conclusion that benefits estimates were made conservatively. To provide more information on these benefits, they were discussed qualitatively in Chapter 3 of the Draft Final Socioeconomic Report with reference to the benefits quantified in previous AQMP socioeconomic assessments. Staff will work to update the methodologies used for quantification of public welfare benefits for future AQMPs.

#### 25-18

The preliminary discussion on the health effects of unemployment is of interest to stakeholders and was discussed at STMPR meetings leading up to this report. The Commenter correctly stated that, among the four different policy impact scenarios, it was found that implementation of the Draft Final 2016 AQMP will have a minimal effect on long-term job growth in the region. To put this preliminary discussion in a more appropriate context, this section was moved to the end of Chapter 4 and prefaced with the job impact findings.



#### 25-19

Staff appreciates the Commenter's support of analysis findings. Base year job estimates have been added to relevant tables in Chapter 4 of the Draft Final Socioeconomic Report and percent changes have been added to Figure 4-1.

#### 25-20

Chapter 4 and Appendix 4B include discussions of how the REMI model works).

#### 25-21

The concept of "jobs foregone" is explained in Chapter 4 of the Draft Final Socioeconomic Report to include both projected job losses and forecasted jobs not created. Staff appreciates the Commenter's offer to help improve clarity of the report.

#### 25-22

Both Figures 5-3 and 5-4(A) captions have been revised to reference "jobs".

#### 25-23

Staff added a personal income per capita statistic above Table 5-1 in order to provide context for the incremental costs and public health benefits.

#### 25-24

Staff agrees that the results presented in Tables 6-5 through 6-7 are important results. A succinct and more reader-accessible discussion of these results has been included in both the Executive Summary and Chapter 8 to provide main takeaways from the environmental justice (EJ) analysis.

#### 25-25

The words "vulnerable" and "disadvantage" were used for consistency with the current EJ literature in which they are commonly used. This choice of words is also consistent with documentation for the CalEnviroScreen tool, which is a quantitative EJ screening method from which the Draft Final Socioeconomic Report's EJ screening analysis is derived.

#### 25-26

The race/ethnicity indicator is included as an additional indicator in two alternative EJ definitions based on comments and suggestions from the 2016 AQMP Socioeconomic Assessment EJ Working Group. The race/ethnicity indicator is indeed highly correlated with other socioeconomic indicators, but it is also an important indicator in its own right as discussed by Industrial Economics, Inc.'s EJ report available at [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/scaqmdfinalejreport\\_113016.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/scaqmdfinalejreport_113016.pdf).

#### 25-27

Staff has attempted to make the distributional analysis accessible to all readers by including general discussion and results in the main chapter, while including the more technical details in Appendix 6-B. A summary discussion of the results of the distributional analysis are also included in the Executive Summary and Chapter 8.

#### 25-28

Chapter 7 of the Draft Final Socioeconomic Report includes a discussion of how the CEQA alternatives have quantitatively small job impacts, similar to those projected for implementation of the Draft Final 2016 AQMP.

#### 25-29

Staff appreciates the Commenter's compliment on Chapter 8 of the Draft Final Socioeconomic Report. Staff has added in information from Chapter 8 to the Executive Summary where appropriate.

#### 25-30

Please see staff responses to Comments 25-2 and 25-3.

#### 25-31

The REMI default job forecast does project that the four-county region would grow much more slowly than the nation and than what is projected the SCAG growth forecast (as shown in Figure 4A-3). Therefore, it provides additional justification for performing the REMI employment and population update.

Appendix 4-A of the Draft Socioeconomic Report evaluated the extent to which the large differences between the REMI default forecast and SCAG forecast might have on the key parameter of labor productivity as described in the Results and Implications section. Staff's analysis found that the REMI employment update would have a minimal effect on this parameter and hence on the job impacts simulated.

#### 25-32

Revisions have been made regarding the fact that both REMI and SCAG relate population growth to job growth on page 4-A-10. Staff briefly explains in Appendix 4-A of the Draft Final Socioeconomic Report the discrepancies between the REMI and SCAG job forecasts. However, REMI staff will need to be involved to explain how the job forecast discrepancies are related to the population forecast.

**COMMENT LETTER #26—STEVE LEVY EMAIL, DECEMBER 19, 2016**

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From: Steve Levy [slevy@ccsce.com]  
Sent: Monday, December 19, 2016 1:02 PM  
To: Elaine Shen  
Subject: Re: Comments

I want to clear up some possible confusion regarding a recent post by John Husing on how many jobs were forecast to be forgone in one of the REMI analysis alternatives.

The average jobs forgone in this scenario were just above 11,000 per year. These forgone jobs are not ADDITIVE as John suggested.

To show an example I will round to 11,000 jobs

Then the average pattern would be

2017 11,000  
2018 11,000  
2019 11,000  
2020 11,000  
2012 11,000  
2022 11,000  
2023 11,000  
2024 11,000  
2025 11,000  
2026 11,000  
2027 11,000  
2028 11,000  
2029 11,000  
2030 11,000  
2031 11,000

These forgone jobs are not cumulative but if they were the pattern would be

2017 11,000  
2018 22,000  
2019 33,000  
2020 44,000  
2021 55,000  
2022 66,000  
2023 77,000  
2024 88,000  
2025 99,000  
2026 110,000  
2027 121,000

26 - 1

2028 132,000  
2029 143,000  
2030 154,000  
2031 165,000

**26 – 1  
(CONT'D)**

But the REMI analysis does not show 165,000 jobs forgone in 2031 and never shows any of these higher numbers.

The jobs forgone shown on the tables in Chapter 4 are in most cases well below 1% and usually below .5% of the baseline consistent with finding of a net change of 0.1% in total jobs in this alternative.

Similarly the jobs added from better health are not cumulative but represent an annual average forecast.

**26 - 2**

One comment mentioned the health impacts of unemployment. It should be noted relative to this comment that the REMI analysis does NOT find an increase in unemployment in the region as a result of the 2016 AQMP.

## Responses to Comment Letter #26

Submitted by Center for Continuing Study of the California Economy (CCSCE) on December 19, 2016

### 26-1

Staff acknowledges the Commenter's response to Comment Letter #23 (Comments 23-2, 23-3 and 23-4). Staff agrees that the projected job impacts are not additive across years.

### 26-2

Staff acknowledges and concurs the Commenter's statement that the REMI analysis does not find a significant increase in unemployment in the region as a result of the 2016 AQMP.



Western States Petroleum Association

Credible Solutions • Responsive Service • Since 1907

Patty Senecal  
Director, Southern California Region

19 December 2016

Via email: [PFine@aqmd.gov](mailto:PFine@aqmd.gov)

Dr. Philip Fine  
Deputy Executive Officer  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

**Re: Comments on the November 2016 version of the Socioeconomic Report for the 2016 Air Quality Management Plan (AQMP)**

Dear Dr. Fine:

Western States Petroleum Association (WSPA) is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California, Arizona, Nevada, Oregon and Washington. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA member companies operate petroleum refineries and other facilities in the South Coast Air Basin and thus have a major stake in the Air Quality Management Plan (AQMP) being prepared by the South Coast Air Quality Management District (SCAQMD or District), and any rule developments that might stem from the final AQMP as adopted by the District's Governing Board.

WSPA believes the 2016 AQMP must be scientifically-based and technically accurate and the District's Governing Board needs to have a thorough assessment of the air quality benefits, environmental impacts, and economic costs associated with that plan. This is consistent with Governing Board Resolution (1989) which directs AQMD Staff to prepare economic analysis that identifies affected industries, the cost effectiveness of emissions controls, and the potential public health benefits of proposed rules.<sup>1</sup>

Our comments on the Draft Socioeconomic Report (dated November 2016) are as follows:

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<sup>1</sup> AQMD, Draft Socioeconomic Report for the 2016 AQMP, November 2016. Page 1-4.

27 - 1

**1. The costs for the Final Draft AQMP have been disproportionately targeted against stationary sources. The plan should be adjusted to more fairly align costs with the needed emissions reductions.**

It is well documented that the South Coast region’s air quality problem is now overwhelmingly due to emissions from mobile sources. In fact, the AQMP’s emission inventory shows that mobile sources are responsible for 85% of regional NOx emissions with the combined emissions from stationary and area sources (e.g., residences) now representing only 15% of those emissions.<sup>2</sup> Yet the AQMP is proposing measures that would impose 36% of the plan’s total costs against stationary sources.<sup>3</sup> Given the significant emission reductions from stationary sources made over the previous decades, this plan’s measures and associated costs must be adjusted to reflect fair share reductions needed for attainment of the National Ambient Air Quality Standards.

**2. The Final Draft AQMP is proposing a number of control measures for which the Draft Socioeconomic Report presents no costs. Given the Final Draft AQMP’s clear demonstration that these measures are unneeded for either the ozone or PM<sub>2.5</sub> attainment demonstrations, they should be removed from the control strategy.**

The Final Draft AQMP continues to include a large number of proposed control measures which are demonstrated in the plan as unnecessary for reaching the region’s “carrying capacity.”<sup>4</sup> These additional measures are presented with no quantified emissions benefits and are often vaguely described as to what the proposed measures would even require. Such extraneous measures include:

27 - 2

Number	Title	Emission Reductions (tpd) (2023/2031)
MCS-01	Improved Breakdown Procedures and Process Re-Design [All Pollutants]	N/A
MCS-02	Application of All Feasible Measures [All Pollutants]	TBD
FLX-02	Stationary Source VOC Incentives [VOC]	TBD
BCM-02	Emission Reductions from Cooling Towers [PM]	TBD
BCM-03	Further Emission Reductions from Paved Road Dust Sources [PM]	TBD

<sup>2</sup> AQMD, Revised Draft AQMP, Appendix III, Attachment A, 2016 Annual Average Emissions by Source Category in South Coast Air Basin, comparison of “Total Stationary and Area Sources” NOx emissions to Total NOx emissions.

<sup>3</sup> AQMD, Draft Socioeconomic Report for the 2016 AQMP, November 2016. Table 2-1, comparison of Present Worth Value of Total Incremental Costs for SCAQMD Stationary Sources to Grand Total for all Qualified Costs.

<sup>4</sup> AQMD, Final Draft AQMP, Chapter 4

**27 - 2  
(CONT'D)**

BCM-05	Ammonia Emission Reductions from NOx Controls [NH3]	TBD
BCM-06	Emission Reductions from Abrasive Blasting Operations [PM]	TBD
BCM-07	Emission Reductions from Stone Grinding, Cutting and Polishing Operations [PM]	TBD
BCM-08	Further Emission Reductions from Agricultural, Prescribed and Training Burning [PM]	TBD
BCM-09	Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves [PM]	TBD
EGM-01	Emission Reductions from New Development and Redevelopment Projects [All Pollutants]	TBD
MOB-01	Emission Reductions at Commercial Marine Ports [NOx, SOx, PM]	TBD
MOB-02	Emission Reductions at Rail Yards and Intermodal Facilities [NOx, PM]	TBD
MOB-03	Emission Reductions at Warehouse Distribution Centers [All Pollutants]	TBD
MOB-04	Emission Reductions at Commercial Airports [All Pollutants]	TBD
MOB-05	Accelerated Penetration of Partial Zero-Emission and Zero-Emission Vehicles [VOC, NOx, CO]	TBD
MOB-06	Accelerated Retirement of Older Light-Duty and Medium-Duty Vehicles [VOC, NOx, CO]	TBD
MOB-07	Accelerated Penetration of Partial Zero-Emission and Zero-Emission Light-Heavy- and Medium-Heavy-Duty Vehicles [NOx, PM]	TBD
MOB-08	Accelerated Retirement of Older On-Road Heavy-Duty Vehicles [NOx, PM]	TBD
MOB-09	On-Road Mobile Source Emission Reduction Credit Generation Program [NOx, PM]	TBD
MOB-12	Further Emission Reductions from Passenger Locomotives [NOx, PM]	TBD
MOB-13	Off-Road Mobile Source Emission Reduction Credit Generation Program [NOx, SOx, PM]	TBD

In fact, while none of these proposed measures has any quantified emission benefits they would certainly impose additional costs on the Southern California economy. Yet the Draft Socioeconomic Report presents no costs for these measures. Given that the AQMP clearly demonstrates that these measures are unneeded for either the ozone or PM<sub>2.5</sub> attainment demonstrations, they should all be removed from the control strategy.



**3. The AQMP control strategy should prioritize non-regulatory, incentive based approaches to reducing emissions outside the State Strategy. The AQMP should consider the potential benefits of extending incentives to reduce costs to industrial stationary sources.**

To the extent they are needed to demonstrate attainment, WSPA is supportive of the Final Draft AQMP's inclusion of control measures based on incentives and other non-regulatory approaches intended to accelerate the transition of vehicles, buildings, and industrial facilities to cleaner technologies. Southern California's industrial facilities (i.e., stationary sources including the region's petroleum refineries) have dramatically reduced their emissions by over 70% for most criteria pollutants over the last two decades, and by 2023 these same industries will have further reduced their NO<sub>X</sub> emission by another 45%.<sup>5</sup> With these additional reductions, industrial facilities may not be able to further reduce emissions in a cost effective manner absent financial incentives.

Industrial sector employment is a vital part of the regional economy. The report notes:

*Despite the industry's shrinking workforce, its output per worker has increased over time, rising from \$89,000 to \$152,000 (in 2015 dollars) over the 2001 to 2014 time period (see Figure 1-3). Currently, the average pay in the sector ranges from \$50,000 in Riverside County to \$69,000 in Orange County, paying about a quarter more than the average wages in these counties. Both chemical manufacturers and refineries are expected to be impacted by stationary source measures. Chemical manufacturing pays slightly higher with average pay ranging from \$58,000 in Riverside County to \$70,000 in Orange County. Petroleum manufacturing pays substantially higher, ranging from \$75,000 in Riverside County to \$117,000 in Los Angeles County.<sup>6</sup>*

The report notes that Southern California's industrial employment remains an important engine for the regional economy. Despite the outsized economic importance of the industrial sector, both in terms of economic output and average wages, the current AQMP strategy would impose a disproportionate share of costs against industrial employers. The AQMD Staff and Governing Board should consider extending the use of financial incentives to include large stationary sources, including major sources. This could accelerate the deployment of cleaner technologies and would be consistent with recommendations from the Ad Hoc Committee on Large Compliance Investments and Future Regulatory Certainty to consider targeted incentives, financing, and funding programs as means for promoting emission reductions and helping businesses remain economically viable, especially in environmental justice areas.<sup>7</sup> The AQMP as currently presented is in conflict with that direction.

<sup>5</sup> AQMD, Staff Report for Amendments to the NO<sub>X</sub> RECLAIM program, Rule 2002, December 2015.

<sup>6</sup> AQMD, Draft Socioeconomic Report, page 1-7.

<sup>7</sup> AQMD Ad Hoc Committee on Large Compliance Investments and Future Regulatory Certainty, September 2, 2016.

4. **The costs presented for proposed control measure CMB-05 (RECLAIM) in Table 2-1 of the Draft Socioeconomic Report are significantly understated. This understatement compromises the Governing Board's ability to make informed policy decisions. Given these uncertainties, proposed measure CMB-05 should be changed to reflect a range of potential emission reductions (e.g., 3-5 TPD NO<sub>x</sub>), and the socioeconomic analysis should be revised to reflect the better cost information which was previously supplied to AQMD Staff by industry (e.g., WSPA).**

Draft Socioeconomic Report Table 2-1 presents the cost for proposed measure CMB-05 at \$856.4 million. This figure is supposedly based on information in the Staff Report for the December 2015 amendments to Regulation XX. However, as previously noted by WSPA, the District was previously provided information that demonstrated the cost for refinery sector emission reductions beyond those required under the December 2015 amendments would be significantly higher than AQMD Staff estimates.

27 - 4

WSPA, through a third party contractor, conducted a confidential cost survey of the Southern California refineries related to total capital and operating costs for compliance with the District's proposed NO<sub>x</sub> RECLAIM shaves. This proprietary information was submitted by refiners on a confidential basis to the third-party contractor who de-identified and aggregated the compliance costs for the overall industry. That forecast suggested the refinery sector compliance costs for the December 2015 shave would be nearly twice the estimate presented by AQMD Staff. Furthermore, WSPA's contractor also projected that additional NO<sub>x</sub> reductions could cost the refining industry as much as \$120,000 per ton, using a 10-year equipment life. Even using Staff's more liberal 25-yr equipment life assumption, the estimated costs for additional reductions came to over \$55,000 per ton of NO<sub>x</sub>.

The proposed control measure openly contemplates the imposition of new command-and-control overlays that would increase compliance costs for RECLAIM sources beyond previous projections. But the measure continues to lack a clear explanation of how RECLAIM facilities might actually achieve such reductions or realistic cost bases for them. Given these uncertainties, proposed measure CMB-05 should be changed to reflect a range of potential emission reductions (e.g., 3-5 TPD NO<sub>x</sub>), and the socioeconomic analysis should be revised to reflect the better cost information which was previously supplied to AQMD Staff by industry (e.g., WSPA).

5. **The Preliminary Draft Socioeconomic Report fails to provide the economic analysis required under California Health & Safety Code section 39616.**

The Draft Socioeconomic Report acknowledges that the California Health & Safety Code section 39616 requires certain economic analyses for market based programs.

27 - 5

*Section 39616 requires the SCAQMD to ensure that any market-based incentive strategy it adopts results in equivalent or greater emission reductions at equivalent or less cost and overall job impacts – i.e., no greater job losses or significant shifts from high-paying to low-paying jobs – when compared to command-and-control regulations. Section 40920.6, requires that incremental*

27 - 5  
(CONT'D)

*cost effectiveness – i.e., the difference in costs divided by difference in emission reductions – be performed whenever more than one control option is feasible to meet control requirements.*<sup>8</sup>

Yet the assessment does not include such an analysis. We would note the specific requirement to demonstrate that market-based programs such as RECLAIM will result in equivalent or greater reduction in emissions at equivalent or less cost compared with command and control regulations and future air quality measures that would otherwise have been adopted as part of the District's plan for attainment. Such analysis is wholly missing and should be incorporated into the economic analysis for proposed measure CMB-05.

**6. AQMD's 25-year useful equipment life assumption is not appropriate and results in understated costs for proposed measure CMB-05. A ten-year useful equipment life would be more appropriate due to the frequency of District rulemakings and the expected technology replacement. Stranded asset costs may need to be considered in the socioeconomic assessment.**

27 - 6

As previously noted, Abt Associates recommended that the District's socioeconomic program should ensure that the control costs include the full cost of retrofitting existing controls or installing new controls. This would include consideration of any stranded asset costs, such as when the proposed BARCT determination requires replacement of prior investments for emission control equipment, or effectively mandates the replacement of basic equipment.<sup>9</sup>

In the case of the CMB-05 program, the District just last year completed a comprehensive assessment for sources covered by Regulation XX and imposed reductions which established new BARCT levels. So at this time there are no identified control technologies for these source categories, and no explanation for how another severe market reduction would occur without basic equipment replacements or forced facility shutdowns.

As such, we believe the use of a 25-year equipment life assumption to compute cost effectiveness is really inappropriate and results in a systemic understatement of AQMP control costs. Control costs for CMB-05 should be re-computed using a 10-year equipment life assumption. Furthermore, the Staff should consider if this measure would cause potential stranded asset costs consistent (with Abt Associates' recommendations), or clearly explain why that is not needed.

<sup>8</sup> AQMD, Draft Socioeconomic Report, page 1-4.

<sup>9</sup> ABT Associates, Review of the SCAQMD Socioeconomic Assessments, Documentation, Task 1-4 Final, 14 August 2014.

**7. For the proposed Advanced Clean Cars 2 measure, the Draft Socioeconomic Report does not provide a basis for cost estimates. Certain assumptions appear questionable, as best. AQMD or CARB must support or adjust these assumptions which are important to the projected costs of the measure.**

The proposed Advanced Clean Cars 2 measure assumes that combined passenger vehicle (LDA/LDT2) ZEV/PHEV sales increase from 18% to 40% between 2025 and 2030, medium-duty trucks (MDV) ZEV/PHEV sales beginning 2026, ramping up to 10 percent by 2030, with 100 percent sales of super-ultra-low-emission vehicles certified to the SULEV 20 exhaust emission standards by 2030 for gasoline light-duty automobiles (LDAs). ARB staff also modeled increased fuel efficiency (at approximately 2.9 percent per year) between 2025 and 2035 for gasoline vehicles. Under this scenario of rapidly declining demand for gasoline and diesel, the analysis assumes that gasoline and diesel prices will increase. Conversely, the analysis suggests that prices for electricity and hydrogen will be flat despite transportation related demand for electricity increasing by 200% and hydrogen by over 210%.<sup>10</sup> No basis is offered for why prices for some energy types might increase in the face of declining demand while others remain flat despite radically increasing demand. Yet those assumptions clearly color the results of the economic analysis. AQMD or CARB should explain the reasoning for these assumptions which are important to the financial analysis.

Furthermore, the analysis seems to completely ignore the economic impacts, positive and negative, of forcing a radical shift of transportation related energy demand from petroleum fuels to electricity. Such a transformation would require significant electricity infrastructure investments, and could also create stranded assets in the traditional petroleum fuels supply chain which this analysis appears to completely ignore. These are significant economic factors which must be analyzed. Instead, the Report downplays broader impacts as being limited retail establishments with lower wage employment.

*The California businesses impacted by this measure concept are largely impacted indirectly, as affiliated businesses such as gasoline service stations, automobile dealers, and automobile repair shops may see changes in the demand for services and goods. These businesses compete within the State and generally are not subject to competition from out-of-state businesses. Therefore, the potential regulations resulting from this measure concept are not expected to impose significant competitive disadvantages on affiliated businesses.<sup>11</sup>*

Given the regional significance of employment in the refining sector, both direct and indirect, these impacts could be regionally important and should be assessed.

<sup>10</sup> AQMD, Draft Socioeconomic Report, Appendix 2-A, Page 2-A-35.

<sup>11</sup> CARB, Mobile Source Strategy, Economic Analysis, Page A-9



**8. The Draft Socioeconomic Report fails to present any costs for the Further Deployment for Cleaner Technologies, On-Road Light Duty control measure. The AQMD's analysis must be revised to include a full assessment of the costs associated with this measure.**

A significant amount of the AQMD's proposed emissions reductions are anticipated to come from the control measure entitled Further Deployment for Cleaner Technologies, On-Road Light Duty.<sup>12</sup> The stated goals of this proposed measure are to accelerate the penetration of zero and near-zero emission vehicles and to promote in-use efficiency gains related to vehicle miles travelled (VMT), and through use of autonomous vehicles and advanced transportation systems.<sup>13</sup> To achieve these further reductions associated with early penetration of the zero and near-zero vehicle technologies established under the ZEV regulation, CARB and AQMD Staff estimate that approximately 500,000 to 600,000 of the oldest passenger cars and trucks would need to be turned over to model year vehicles meeting the currently applicable LEV III emission standard or advanced hybrid or zero-emission technology by 2023. To achieve these objectives, which would only apply to the South Coast basin, the agencies suggest they would:

- *Expand and enhance existing incentive and other innovative funding programs for light-duty vehicles in order to accelerate the replacement of older vehicles with vehicles meeting a LEV III or better emissions level. Assuming incentive funding is the primary mechanism to achieve the scope of further technology deployment described above; funding would be required for approximately 70,000 to 85,000 vehicles per year over a seven year period. The incentive funding required for this effort would go beyond the amount currently authorized for existing programs through 2023. This effort could expand upon the current EFMP and EFMP Plus-Up programs, and include increasing the use of these vehicles in underserved communities and by lower-income consumers. Continued incentive funding post-2023 to further accelerate the deployment of zero-emission vehicles would provide additional reductions for 2031.*

*Determination of the needed resources will be based on assessment of the incremental cost of technologies and the type of funding mechanism employed. Funding needs and mechanisms will be identified working in collaboration with the South Coast and other State agencies over the next several months.*

- *Continue to support infrastructure investment programs with the California Energy Commission (CEC) to maximize the use of electric vehicles through expanding charging and hydrogen networks.*

The scale of this measure is very large and would represent a significant transformation of the transportation sector, yet the Draft Socioeconomic Report presents no information concerning the potential impacts associated with this measure. The Preliminary Draft version of the Socioeconomic Report actually presented a cost estimate for this measure that totaled \$22 billion.<sup>14</sup> The Draft Socioeconomic Report states these costs were omitted for the following reason:

<sup>12</sup> AQMD, Final Draft AQMP, Table 4-5 and Appendix IV-B, Table 3.

<sup>13</sup> AQMD, Revised Draft AQMP, Appendix IV-B, Page IV-B-17.

<sup>14</sup> AQMD Preliminary Draft Socioeconomic Report, Table 2-1, Present Worth Value of Total Incremented Cost.

*This control measure is primarily designed to reduce greenhouse gas emissions and therefore it is recognized as providing NOx and VOC reductions as a co-benefit since it is part of other state programs that are expected to be implemented even if the Revised Draft 2016 AQMP is not adopted.<sup>15</sup>*

But this assertion is directly contradicted by the CARB Mobile Source Strategy which states:

*This proposed measure is designed to achieve further emission reductions for South Coast attainment in 2023 and 2031 through a suite of additional actions, including early penetration of zero and near-zero technologies, and emission benefits associated with increased transportation efficiencies, as well as the potential for autonomous vehicles and advanced transportation systems. The emission reductions will be achieved through a combination of actions to be undertaken by both ARB and the South Coast. These actions reflect an initial assessment of a pathway, recognizing that as funding is allocated and advanced technologies further develop, the balance amongst approaches will necessarily adjust.<sup>16</sup>*

So these costs are related to this AQMP and should be included in the analysis. By more than doubling the cost of the AQMP, this would dramatically increase both the cost to consumers and the required incentive funding.<sup>17</sup>

And again, the analysis completely ignores the economic impacts, positive and negative, of forcing a radical shift of transportation related energy demand from petroleum fuels to electricity. Such a market change could create stranded assets in the traditional petroleum fuels supply chain which this analysis completely ignores. These are significant economic factors which must be analyzed.

The AQMD's socioeconomic analysis should be revised to include a full assessment of the costs associated with this measure.

**9. The proposed Low-Emission Diesel Fuel Requirement measure is poorly defined and inadequately analyzed.**

Under the Low-Emission Diesel Fuel Requirement measure, the portion of the heavy-duty fleet that chooses to continue operating on internal combustion engines, instead of adopting the expectedly more cost-effective zero and near-zero emission technologies, is anticipated to incur additional costs due to the proposed requirement to utilize low-emission diesel fuel.

WSPA continues to have several key questions regarding Low-Emissions Diesel (LED).

<sup>15</sup> AQMD, Draft Socioeconomic Report, November 2016, Preface, Page 2-1.

<sup>16</sup> CARB, Mobile Source Strategy, May 2016, See description of "Further Deployment of Cleaner Technologies: On-Road Light-Duty Vehicles" found on page 74.

<sup>17</sup> Comparison of "Grand Total Cost for All Quantified Measures" (PWV basis) figure presented in Preliminary Draft Socioeconomic Report, Table 2-1 (August 2016), and the corresponding value presented in Draft Socioeconomic Report, Table 2-1 (November 2016).

27 - 8  
(CONT'D)

27 - 9

27 - 9  
(CONT'D)

- While the Report limits its analysis of this measure to off-road equipment, the discussion suggests this LED requirement would apply to all diesel sales (i.e., on-road and off-road). Is the measure only limited to off-road equipment? If not, the socioeconomic analysis is deficient.
- What is the disposition of conventional gas to liquids (GTL) fuels and other like fuels in this strategy?
- Why add the carbon intensity component to the low emission diesel when the LCFS standard and Cap & Trade program already does this?

By CARB's own projections, later model year trucks equipped with NO<sub>x</sub> traps and PM filters would constitute more than 90% of the off-road equipment fleet by 2023. In addition, there is another measure in the Mobile Source Strategy that drives the engine manufacturers to even lower exhaust emission targets. With those two key elements, it is not clear what the benefits of requiring this potentially costly fuel would be.

- WSPA would like CARB and AQMD to provide a forecast of market share for legacy on-road diesel vehicles in 2025 as well as the projected off-road fleet. Such analysis should separate the impact of vehicle technology from the emissions impacts of low emission diesel fuel.
- Such analysis should explain the incremental benefit of the low emission diesel fuel over the new technology vehicles.

Creating a new LED fuel standard for off-road equipment would force a separate distribution requirement on the industry which would carry with it significant new costs which have not been analyzed.

Again, the AQMD's socioeconomic analysis completely ignores larger economic impacts, positive and negative, of forcing a radical shift of transportation-related energy demand from petroleum fuels to electricity. Such a market change could create stranded assets in the traditional petroleum fuels supply chain, and also would demand significant new costs for electricity infrastructure which this analysis has completely ignored. These are significant economic impacts which must be analyzed.

WSPA appreciates the opportunity to submit these comments. We may submit additional comments during this process as the District releases additional 2016 AQMP documents. We understand all submissions will be given due consideration by the District staff and the Governing Board.

If you have any questions, please contact me at (310) 808-2144 or by email at [psenechal@wspa.org](mailto:psenechal@wspa.org).

Sincerely,



## Responses to Comment Letter #27

Submitted by Western States Petroleum Association (WSPA) on December 19, 2016

### 27-1

Staff appreciates comments on the Draft Final 2016 AQMP and continued participation in the AQMP development process.

Staff has prepared the socioeconomic analysis consistent with the 1989 Governing Board Resolution.

SCAQMD and CARB recognize the need for emission reductions from local, state and federal sources. As such, a “fair share” approach to achieving of reductions needs to take place. The percent NO<sub>x</sub> emission reductions needed to meet the 8-hour ozone standards by 2023 and 2031 at 45 and 55 percent, respectively, would be a guide, although not a limit for collecting fair share reductions. Staff acknowledges that stationary sources are already “well controlled.” However, staff recognizes opportunities to transition to cleaner technologies with commercially available, cost-effective equipment. In addition, incentives could assist in accelerating deployment of advanced technologies in some cases faster than a regulatory approach. It is important to recognize the responsibility of the SCAQMD to ensure attainment of the standards in a timely manner and the obligation to exercise authority over the stationary sources that could assist in meeting those required deadlines. As noted numerous times during the development of the 2016 AQMP, eliminating all stationary source emissions would still not result in the standards being met, but that does not remove the responsibility of those sources, when cost-effective and feasible, to further reduce emissions.

Basin residents are exposed to emissions from a multitude of mobile sources each day. Reducing emissions from mobile sources is generally the most cost-effective way to reduce regional and local air pollution health impacts. Two-thirds or about \$10 billion of the Draft Final 2016 AQMP’s total incremental cost is related to mobile source control strategies, and these strategies are expected to lead to more than 80 percent of the emission reductions needed to attain the 8-hour ozone standard by 2031. The “fair share” approach calls for emissions reductions from local, state and federal sources that reasonably reflect the sources’ share of emissions and not the percentage of estimated costs.

### 27-2

The “TBD” (to be determined) measures require further technical and feasibility evaluations and the attainment demonstration is not dependent on these measures. However, they are included in the 2016 AQMP as part of a comprehensive plan with all feasible measures in case there is a possible need for contingency measures and in the event of a shortfall in reductions requiring the need for contingency measures. As emission reductions are realized and to the extent that the reductions can be SIP creditable, the reductions will be taken as part of future rate-of-progress reporting or as part of future AQMP revisions. For some SCAQMD TBD mobile source measures, emission reductions are accounted for under the CARB SIP Strategy, so emission reductions are not listed to avoid overlap. These emission reductions will take place locally and will be determined when the programs, such as facility-based measures, are implemented.

It is important to note that NAAQS are expected to be attained with the quantified emission reductions alone. For the cost analysis, incremental costs are estimated for the control strategies with quantified



emission reductions only. Some of the control strategies with TBD emission reductions may serve as measures to make up for any unexpected emission reductions shortfall in reaching the goals of the state strategy. Many of these control strategies include emerging technologies. Therefore, their emission-reducing potential may still need to be evaluated and their cost-effectiveness remain highly uncertain or unknown at this time.

### 27-3

Please see staff response to Comment 19-4 with regards to extending financial incentives to large stationary sources.

### 27-4

Please see staff response to Comment 19-1 with regards to the costs presented for control measure CMB-05.

### 27-5

Please see staff response to Comment 19-3 with regards to the economic analysis required under California Health and Safety Code section 39616.

### 27-6

Please see staff response to Comment 19-2 with regards to the assumption of equipment life.

### 27-7

The cost analysis of the proposed Advanced Clean Cars 2 measure was based on cost information and information provided by CARB staff. According to CARB staff, the cost information incorporated the standard estimates of fuel price projections. Price projections for gasoline, diesel and electricity were projected by the U.S. Department of Energy's "Annual Energy Outlook 2015," which is common practice for this type of analysis. The U.S. Department of Energy, however, does not provide price projections for hydrogen, and without complete information, CARB staff employed a constant \$6/kg for years 2026-2031. This price estimate was based on the best information currently available.

CARB's economic analysis focuses on direct impacts of the proposed measure. Estimates of indirect and induced impacts will be included in CARB's Advanced Clean Cars 2 Administrative Procedure Act regulatory process, which includes the opportunity for public participation in workshops where CARB staff will present potential costs and benefits of proposed measures on businesses, consumers, and California state agencies. However, it should be noted that the SCAQMD's Draft Final Socioeconomic Report does include the direct, indirect, and induced macroeconomic impacts of this measure as part of overall regional macroeconomic impact assessment of the Draft Final 2016 AQMP (Table 4-1).

### 27-8

As stated in the preface of Chapter 2 in the November 19, 2016 version of the Draft Socioeconomic Report and quoted by the commenter, the proposed mobile source measure "Further Deployment for Cleaner Technologies: On-Road Light-Duty Vehicles" is primarily designed to reduce greenhouse gas emissions and therefore it is recognized as providing the co-benefit of NOx and VOC reductions that are expected to be implemented even if the Draft Final 2016 AQMP is not adopted. Their costs are therefore not a result of the Draft Final AQMP and are not included in the socioeconomic assessment of the Draft Final 2016 AQMP.

Moreover, according to CARB's economic impact analysis of the state's mobile source strategy, there would be minimal direct costs on program participants from 2017, and at minimum, to 2023. This is because a large portion of the capital costs related to purchasing cleaner vehicles were assumed to be financed by incentive programs during the same period. Incremental costs of capital spending are expected only from 2023 to 2031, when incentives were conservatively assumed to be unavailable in CARB's economic modeling (pages A-9 to A-10; the analysis is available at [https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc\\_appA.pdf](https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc_appA.pdf)).

However, it should be noted that, first, the purchase of cleaner light-duty vehicles will be voluntary and program participants are not expected to make the purchase unless it is economically advantageous to do so. Second, the additional cost estimated by CARB and subsequently analyzed in the Preliminary Draft Socioeconomic Report did not take into account cost-savings, including fuel and operating and maintenance savings for the entire period of 2017 to 2031. As a result, even if the net incremental costs of this measure would have been included in the analysis, they are expected to be significantly lower than the preliminary cost estimate and may result in overall net cost-savings. Whether this "Further Deployment" measure for on-road light-duty vehicles would result in net costs or cost-savings, those cost impacts are expected to occur even if the Draft Final 2016 AQMP is not adopted and therefore they are not a result of implementing the Draft Final 2016 AQMP.

#### 27-9

The commenter claims that the Draft Socioeconomic Report limits its analysis of the proposed low-emission diesel (LED) measure to off-road equipment. However, this is not the case. First, the concept of this measure is not limited to off-road equipment. Since most NOx and PM reductions are expected to occur in the off-road sector, the NOx and PM emission benefits analysis has been limited to the off-road sector to arrive at the conservative estimates of NOx and PM reductions. CARB's economic analysis and the SCAQMD's Draft Final Socioeconomic Report cover both on-road and off-road LED use.

The commenter also inquired about the disposition of conventional gas to liquids (GTL) fuels and other like fuels in the proposed strategy. All alternative fuels that belong to the diesel pool including GTL are covered under this provision due to their potential to reduce PM and NOx emissions.

Regarding the commenter's question about carbon intensity, CARB staff responded that the updated low-emission diesel measure concept will not require the low emission diesel to meet the carbon intensity thresholds of 30-60 g CO<sub>2</sub>e/MJ. Nonetheless, any low-emission diesel fuels including GTL sold in California will be subject to the GHG reduction and carbon intensity requirements under the Cap and Trade and the LCFS.

The commenter's statement "By CARB's own projections, later model year trucks equipped with NOx traps and PM filters would constitute more than 90% of the off-road equipment fleet by 2023." is incorrect. The 90% figure does not refer to the off-road equipment fleet.

Based on CARB staff's finding, appreciable NOx emission reductions from the on-road sector under the low-emission diesel measure concept are not expected, although there will still be appreciable reductions in PM. The NOx reductions will mainly come from the off-road sector since this sector is not expected to see a significant penetration of SCR equipped engines. By excluding PM and NOx emissions from the on-road sector, the estimated PM and NOx reduction benefits account for these two key elements.

As mentioned above, a forecast of market share for legacy on-road diesel vehicles in 2025 is not relevant for NOx and PM reductions analysis since the CARB analysis omits NOx and PM reductions from the on-road sector to provide conservative estimates of NOx and PM reductions. This also implies that the NOx and PM estimates are the incremental benefits of the low emission diesel fuel over the new technology vehicles. The estimated benefits do account for the off-road fleet population. Please note that the Vision model provides the “non-SCR” share of the on-road fleet from Vision’s heavy duty module. The non-SCR share of the off-road emission inventory model can be obtained from [https://www.arb.ca.gov/msei/categories.htm#offroad\\_motor\\_vehicles](https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles)

Regarding the new LED fuel standard for off-road equipment, as mentioned before, the proposed low-emission diesel measure concept applies to low-emission diesel fuels used in the off-road and on-road sectors. Hence this statement is not applicable here.

Also, see the response to the 2016 AQMP Comment 105-3.

COMMENT LETTER #28—BIZFED, DECEMBER 19, 2016



Strengthening the Voice of Business

- BizFed's Member Alliance
ALA Los Angeles
Alhambra Chamber
American Beverage Association
Antelope Valley Board of Trade
Apartment Association, California Southern Cities
Apartment Association of Greater Los Angeles
Arcadia Association of Realtors
Arcadia Chamber
Asian American Business Women Association
Asian American Economic Development Enterprise
Asian Business Association
Association of Independent Commercial Producers
Azusa Chamber
Ball Gardens Chamber
Beverly Hills Chamber
Beverly Hills / Greater LA Association of Realtors
Burbank Association of Realtors
Burbank Chamber
Building Industry Association, LA / Ventura Counties
Building Owners & Managers Association, Greater LA
Calabasas Chamber
California Apartment Association, Los Angeles
California Business Roundtable
California Cannabis Industry Association
California Construction Industry and Materials Association
California Contract Cities Association
California Consumer Finance Association
California Fashion Association
California Grocers Association
California Hotel & Lodging Association
California Independent Bankers
California Independent Petroleum Association
California Life Sciences Association
California Metals Coalition
California Restaurant Association
California Small Business Alliance
California Trucking Association
CAlifornavates
Carson Dominguez Employees Alliance
Central City Association
Century City Chamber
Citrus Valley Association of Realtors
Coalition for a Prosperous America
Community Associations Institute, Los Angeles
Construction Industry and Water Quality Coalition
Consumer Healthcare Products Association
Council on Trade and Investment for Filipino Americans
Culver City Chamber
Downey Association of Realtors
Downtown Long Beach Associates
El Monte/South El Monte Chamber
Employers Group
Engineering Contractor's Association
Entrepreneurs Organization, Los Angeles
F.A.S.T.-Fixing Angelenos Stuck in Traffic
Filipino American BIC
FilmeLA
Foreign Trade Association
FuturePorts
FWFA
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Los Angeles Auto Show
Greater Lakewood Chamber
Greater Los Angeles African American Chamber
Greater Los Angeles New Car Dealers Association
Harbor Association of Industry and Commerce
Harbor City / Harbor Gateway Chamber
Harbor Trucking Association
Hollywood Chamber
Hospital Association of Southern California
Hotel Association of Los Angeles
Industry Manufacturers Association of America
International Warehouse Logistics Association
Inglewood Airport Area Chamber
Irwindale Chamber
Japan Business Association of Southern California
LA Canada Flatridge Chamber
LAX Coastal Area Chamber
Leadership for Urban Renewal Network
League of California Cities
Long Beach Area Chamber
Los Angeles Area Chamber
Los Angeles Black YEA Association
Los Angeles Cleantech Incubator
Los Angeles County Bicycle Coalition
Los Angeles County Consumer Affairs
Los Angeles County Waste Management Association
Los Angeles Insite Chamber
Los Angeles Latino Chamber
Los Angeles Metropolitan Hispanic Chamber
Malibu Chamber
Los Angeles Farming Association
Los Angeles Urban League
Los Angeles World Affairs Council
Pacific Palisades Chamber
Pasadena Chamber
Pomona Chamber
Plebe Business Council
Motion Picture Association of America
MovieLA
Most Worshipful Hiram Tyre Grand Lodge
NAIOP Southern California Chapter
National Alliance for Jobs and Innovation
National Association of Women Business Owners, LA
Pacific Merchant Shipping Association
Pasadena Foothills Association of Realtors
Pasadena Industry Association
Redondo Beach Chamber
Regional Black - San Fernando Valley Chamber
Regional Hispanic Chamber
Regional San Gabriel Valley Chamber
Rosemead Chamber
Rotary Club of Los Angeles
Sacramento Chamber
San Gabriel Chamber
San Gabriel Valley Civic Alliance
San Gabriel Valley Economic Partnership
Santa Clarita Valley Economic Development Corp.
San Pedro Peninsula Chamber
Santa Monica Chamber
Santa Monica Insite Chamber
Small Business Action Committee
Society of Hispanic Professional Engineers - Los Angeles
South Asian Business Alliance Network
South Bay Association of Chambers
South Bay Association of Realtors
Southern California Golf Association
Southern California Greatmakers
Southern California Minority Supplier Development Council Inc.
Southern California Water Committee
Southland Regional Association of Realtors
South Park Stakeholders Group
Toluca Lake Chamber
Torrance Area Chamber
Troy Hall Los Angeles
Tri-Counties Association of Realtors
United Chambers San Fernando Valley
Universal City North Hollywood Chamber
United States-Mexico Chamber
U.S. Green Building Council-LA
Valley Economic Development Center
Valley Industry & Commerce Association
Valley International Trade Association
Tereson Chamber
Vietnamese American Chamber
Water Replenishment District
We Care for Humanity
West Hollywood Chamber
West Los Angeles Chamber
West San Gabriel Valley Association
Western Manufactured Housing Association
Westside Council of Chambers
Western States Petroleum Association
West Valley/Warner Center Chamber
Westwood Village Improvement Association
Wilmington Chamber
Young Professionals in Energy - LA Chapter
Youth Business Alliance
Warner Center Association

December 19, 2016

Dr. Elaine Shen
Program Supervisor,
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: COMMENTS ON THE DRAFT SOCIOECONOMIC REPORT

Dear Dr. Shen,

On behalf of the Los Angeles County Business Federation (BizFed), a grassroots alliance of more than 160 top business organizations representing 325,000 employers with more than 3 million employees throughout Southern California, we appreciate the opportunity to provide comments on the Draft Socioeconomic Report (Report) related to the Revised Draft 2016 Air Quality Management Plan (AQMP or Plan). As you know, BizFed members represent Southern California's broader business community. Our diverse group is comprised of major regional business entities and associations, whose members include large and small employers, minority business owners, and job creators from a wide range of industries.

At its core, the Socioeconomic Report is a comparison of the projected costs of the 2016 AQMP to its projected benefits. Therefore, our comments are grouped below as pertaining primarily to either the costs or the benefits presented in the Report.

- We have serious issues with the cost-benefit analysis. The Report indicates the financial costs to comply with the AQMP to be \$2.5 billion a year. It also indicates the actual financial health costs saved would be far less at \$200 million a year. The only way the benefits get to the \$36 billion figure is through the VSL concept, which is not an economic figure, but is supposedly a statement of what people might pay. This does not create a proper economic analysis. In fact, if the "willingness-to-pay" figure properly represented a person's desire to pay for cleaner air, then we would be seeing more correlation between the figure and the ability to fund the incentives needed to carry out the AQMP. Additionally, we dispute the accuracy of the assumption that a one percent increase in income raises VSL by 1.1 percent and believe this greatly overestimates public health benefits of the AQMP.
The destruction of more than 169,000 jobs between 2017-31

28 - 1

28 - 2

in the South Coast Air Basin from the 2016 AQMP is deeply concerning. The Report claims that this job loss will be offset by positive job gains from the health benefits created by the AQMP; however, we highly doubt these job gains will occur (see Husing comment letter dated November 21, 2016). The long-term, cumulative impacts of this amount of job destruction will contribute to the inability of low-skilled workers to migrate out of poverty due to job suppression in sectors (logistics, manufacturing, etc.) most hindered by SCAQMD regulations.

28 - 2  
(CONT'D)

- Overall, we find the section of the Report entitled, "Preliminary Discussion of Health Effects of Unemployment" to be inadequately researched. The District must do a better job of measuring the health effects of unemployment that result from its regulations. What the business community has requested over the past four years is to analyze the health effects of poverty and to not limit the analysis to unemployment. Over 25 percent of the children in the region are living in poverty, and this is a crisis that cannot be ignored and that carries significant health impacts. It appears there was no direction to Abt, or to anyone, to consider this issue; but only this type of analysis will begin to show the true costs of air quality regulations and display a proper comparison of the costs and the benefits associated with the 2016 AQMP.

28 - 3

- The District should formally implement a "look-back" audit process whereby actual implementation costs are compared with Staff's initial projections, with the estimating methodology recalibrated as necessary.

28 - 4

- Small businesses are the backbone of Southern California's economy; yet, the SER/REMI does not capture the economic impacts of the AQMP on small businesses. We continue to urge the District to consider fully the impacts that its regulations have on small businesses as part of the AQMP socioeconomic analysis process.

28 - 5

- There is dispute regarding the SCAQMD's assumption that health benefits continue to be linear for air quality improvements below the NAAQS. There is reportedly no scientific basis for that assumption, but it makes a significant impact on the study's outcome.

28 - 6

- Some commenters have indicated that there is "strong epidemiologic evidence that there is no relationship between PM2.5 and total mortality in California" (see Enstrom and Nebert comment letters on Draft 2016 AQMP). If such comments are valid, then that would significantly impact the socioeconomic analysis since most of the calculated socioeconomic benefits from health are tied to reduced mortality from reductions in PM2.5.

28 - 7

In closing, we appreciate the District's efforts to analyze the economic consequences of the AQMP and continue to encourage the SCAQMD to enhance its analysis to more fully capture the costs and more accurately assess the public health benefits associated with the AQMP. BizFed leadership will continue to help with this endeavor any way we can, and we would like to reorient you to a comment letter that we submitted to the SCAQMD Governing Board on November 6, 2014 regarding the report prepared by Abt Associates (August 14, 2014) following its evaluation of the District's process for socioeconomic assessments. This letter has been attached to these comments for your convenience and provides an overview of our overarching recommendations to enhance SCAQMD's process for preparing

28 - 8

socioeconomic assessments. ] **28 - 8 (CONT'D)**

Thank you for considering our viewpoints on this matter.

Sincerely,



Gilbert F. Ivey  
BizFed Chair  
Former CAO,  
Metropolitan Water District



David Fleming  
BizFed Founding Chair



Tracy Hernandez  
BizFed Founding CEO  
IMPOWER, Inc.

### **NOTES FOR COMMENT LETTER #28**

The following attachment(s) were included with the comment letter submitted by BizFed on December 19, 2016 and were duplicate entries on previous comment letter(s) received:

1. Attachment A to Comment Letter #22



## Responses to Comment Letter #28

Submitted by Los Angeles County Business Federation (BizFed) on December 19, 2016

### 28-1

Please see staff response to Comment 22-3.

### 28-2

The Draft Final Socioeconomic Report modeled four impact scenarios to provide a plausible range of modeling results: from 9,000 jobs foregone to 27,000 jobs gained on average per year between 2017 and 2031. Two of the scenarios did not include the positive job impacts associated with public health benefits-based amenity improvements; moreover, for the interest of transparency and documentation clarity, Chapter 4 of the Draft Final Socioeconomic Report also included a sensitivity test to address the uncertainty of amenity modeling in REMI and discussed the implications of this test. Regarding the claimed impact of the SCAQMD regulations on job suppression and poverty, please see staff responses to Comments 22-2, 23-2 and 23-3.

### 28-3

Please see staff response to Comment 22-2.

### 28-4

Staff appreciates the comment regarding implementation of retrospective, or “look-back,” analysis. Staff has initiated a preliminary literature review to identify existing retrospective studies and will continue this effort. One of the major challenges of conducting retrospective analysis, as identified by staff and also in the literature, is the difficulty to access and obtain detailed and often confidential firm-level financial information, including the actual compliance costs incurred. Therefore, any help from stakeholders, the commenter included, will be highly appreciated and will greatly mitigate the data limitations that could potentially constrain the scope and extent of any retrospective analysis. Staff also appreciates the Commenter’s offer to assist with enhancing the SCAQMD socioeconomic assessment (see Comments 22-6 and 28-8).

### 28-5

The Small Business Analysis in Chapter 2 of the Draft Final Socioeconomic Report provides information on the potential impacts on small businesses in each industry from implementation of the Draft Final 2016 AQMP. The scope of the analysis was limited due to data limitations. Staff is committed to performing additional refined small business impact analyses during the rulemaking process when more facility-specific data will be available.

Staff is currently working with an expert consultant Industrial Economics, Inc. (IEc) to identify the most updated literature, methodology, and tools to assess socioeconomic impacts that are small in scale, concentrated in a few industry sectors, or mainly affect small businesses. The purpose of such analyses is to complement the REMI simulations of jobs and other macroeconomic impacts currently conducted by staff. Staff will survey stakeholder interest with regards to convening a meeting to discuss IEc’s draft findings and recommendations, which are expected to be completed in the second quarter of 2017.



28-6

Please see staff response to Comment 22-4.

28-7

Please see staff response to Comment 12-1.

28-8

Please see staff response to Comment 22-6.

## COMMENT LETTER #29—OCTA, DECEMBER 19, 2016

### Form Information

Date Created

12/19/2016

Time Created

5:00 PM

AQMP Year

2016

### Commentor Contact Information

Commentor's Name\*

GREG NORD

Organization\*

OCTA

City

State

Zip Code

If not representing a specific organization, please enter "No Affiliation".

### Comments (Unlimited Size)

The Orange County Transportation Authority (OCTA) appreciates the opportunity to comment on the Socioeconomic Report for the 2016 Air Quality Management Plan (AQMP), as well as the opportunity to participate on the AQMP Advisory Committee. We also recognize the challenge faced by the South Coast Air Quality Management District's (SCAQMD) to compile a plan that can demonstrate attainment of federal ambient air quality standards, while minimizing potential economic impacts. This letter offers comments focusing on the proposed measure ORHD-04 - Advanced Clean Transit, as well as some general comments on the Socioeconomic Impact Report.

Measure ORHD-04 - Advanced Clean Transit, assumes that transit bus fleets are currently able to implement zero-emission technologies. However, CARB's Mobile Source Strategy document (May 2016) indicated that some of this technology, such as fuel cell buses and battery electric hybrid buses are still very early in the commercialization phases. Additionally, stakeholders, including OCTA, are continuing to work with CARB to refine this proposed regulation and to better understand the costs and potential service impacts. Considering that these issues are still under discussion, we respectfully request that the Socioeconomic Report emphasize that the costs for this measure remain uncertain.

According to Appendix 2-A, Compilation of Incremental Costs of Control Measures, SCAQMD is estimating a net cost savings of \$6.6 million annually (2017-2031) from implementation of this measure. This cost estimate is based on the assumption that operating and maintenance costs and fuel savings will more than offset the incremental cost of new electric/CNG or fuel cell urban bus. Even if urban buses are available to meet the 0.02 grams/brake-horsepower hour standard, OCTA contends that it is unlikely that such equipment would only cost an additional \$50,000 per bus, as assumed by SCAQMD. This measure further assumes that a bus lifespan is only 12 years, which suggests a fleet turnover in advance of the 14 year cycle OCTA plans for. OCTA has concerns related to these assumptions and will continue to work with CARB and AQMD to improve these cost estimates and the assumptions related to fleet turnover.

It is unclear where SCAQMD's assumptions for "willingness to pay for life" (WTP) and Value of a Statistical Life (VSL) came from. These assumptions form the basis for all cost benefits of the entire clean air plan. Please provide copies of any references used to estimate the \$4.2 million - \$13.7 million range that someone would pay to live longer. These numbers are, in turn, used by SCAQMD to estimate a \$9 billion to \$49 billion in total cost savings from the AQMP.

According to Table 3-4 - Monetized Public Health Benefits, about 98 percent of estimated reduction in mortality would result from PM2.5 attainment. Since all of the Basin's monitors (with the exception of Mira Loma) show attainment with ambient PM2.5 standards, it is unclear what additional health benefits, if any, would be derived by potentially lowering an already low concentration. The SCAQMD estimate of \$26.8 - 36.7 billion in health benefits from attainment of the PM2.5 standard appears to overstate potential benefits, and overestimates the Basin's population that actually experiences PM2.5 above the federal health-based standard.

Members of the Scientific, Technical, Modeling Peer Review Advisory Group (STMPR) provided comments stating that there is a much lower correlation than the one cited by SCAQMD between PM2.5 concentrations and mortality rates. The previously assessed potential health benefits associated with implementation of the plan should be reevaluated in light of the studies presented by the STMPR members.

Thank you for the opportunity to provide comments.


### Upload Additional Comment and Supporting Files ( 30 Mb Maximum per file)

Socioeconomic Report Comments Files

Attach Socioeconomic Report Comments Files

Note: Supported upload files include all versions of Microsoft Office, jpeg, tiff, PDF, mp3, mp4, and text files.

Commentor Signature\*



## Responses to Comment Letter #29

Submitted by Orange County Transit Authority (OCTA) on December 19, 2016

### 29-1

The proposed Advanced Clean Transit control measure is part of the state's mobile source strategy. Cost estimates for this measure were based on data and assumptions provided by CARB staff, which are consistent with those used in CARB's Mobile Source Strategy Appendix A: Economic Impact Analysis, except for the economic impact modeling assumption regarding whether capital spending would be financed. SCAQMD staff has made revisions to Appendix 2-A of the Draft Final Socioeconomic Report to clarify that the estimated overall cost-savings were derived based on currently available information including fuel price projections. Additionally, the comment has been forwarded to CARB for their consideration.

### 29-2

Please see staff response to Comment 20-2 regarding the availability of reference documents for willingness to pay (WTP) and value of statistical life (VSL) and staff response to Comment 22-3 for a detailed explanation of the WTP concept. VSL is derived from studies that methodically estimated WTP for mortality risk reductions, and as discussed in Chapter 3 of the Draft Final Socioeconomic Report, it reflects a population's aggregated willingness to pay so that the associated risk reductions are statistically equivalent to one case of premature death avoided. The concept of VSL does not place a monetary value on saving a life with certainty, and it was not used in staff's analysis to value life extension.

### 29-3

Please see staff response to Comment 20-12 regarding the scientific consensus that public health benefits would continue to accrue due to reduced exposure to air pollutants at all levels of pollutant concentration, even at levels below the current NAAQS. Please also see staff response to Comment 12-1 regarding the concentration-response (C-R) relationship between PM<sub>2.5</sub> exposure and the risk of premature deaths. It should be clarified that the C-R functions used in the Draft Final Socioeconomic Assessment were recommended by the SCAQMD's expert Industrial Economics, Inc. (IEc) and their scientific advisor, and were discussed and reviewed at multiple meetings of the 2016 AQMP Scientific, Technical and Modeling Peer Review (STMPR) Advisory Group, which were open to public participation with advanced meeting notices electronically mailed to all 2016 AQMP interested parties. Alternative views of the C-R relationship as cited by the Commenter were submitted as public comments and were not provided as comments by STMPR members.



December 19, 2016

Mr. Wayne Nastri  
Executive Officer  
South Coast Air Quality Management District  
21865 E. Copley Drive  
Diamond Bar, CA 91765

COMMENTS ON THE DRAFT 2016 AIR QUALITY MANAGEMENT PLAN

Dear Mr. Nastri:

The California Small Business Alliance (Alliance) is a non-partisan coalition of California trade associations committed to providing small businesses with a single constructive voice before the South Coast Air Quality Management District (SCAQMD), and other environmental regulatory agencies. As active participants in the development of the Air Quality Management Plan (AQMP), Alliance members have served on the AQMP Advisory Group, Advisory Council, and on many White Paper Working Groups. Alliance members also have been actively engaged in the ongoing dialog with other stakeholders representing a broad cross section of business interests, neighborhood community organizations, and local, state and federal agencies. As the AQMP appears to be in the final stages of development, we want to take this opportunity to comment on the Socioeconomic Report (SER), prior to it being presented to the Governing Board for review and adoption consideration.

30 - 1

**General Comments**

Just as the Alliance has been a contributing stakeholder in the two-plus years during which the AQMP was being developed, the thousands of small businesses that are represented by our trade association member organizations are also stakeholders contributing to the vitality of region's economy. Both owners and employees have a vested interest in seeing that this regional blueprint is realistically and fairly designed to achieve federal air quality standards in the South Coast Basin, without causing harm to the economy.

We commend the staff for assuring us that the technological and financial impacts on small businesses associated with the ensuing rulemaking process will be assessed in greater detail than it is in the AQMP. We remind staff that as part of their recommendation for undertaking this task, Abt Associates, Inc., urged the use of industry-specific studies, case studies, and surveys, which we take to mean directly involving the small business community and not relying solely on computer modeling and analyses by the REMI model or from outside third parties.

Finally, our participation in past AQMPs has taught us that most of the proposed control strategies, and the ensuing rulemaking activity, are designed to protect the public from the

273 North Spruce Drive • Anaheim, CA 92805

Telephone: (714) 778-0763 • Web: [www.calsmallbusinessalliance.org](http://www.calsmallbusinessalliance.org)



30 - 1  
(CONT'D)

harmful effects of pollution, and gradually move us toward the ever-elusive goal of “attainment.” However, the two sections in every AQMP where profound differences always seem to arise between the Staff and stakeholders, especially the business community, deal with health effects, and socioeconomic impacts. It is our hope that the 2016 AQMP will not be a continuation of this process.

**A Discussion About Costs**

The SER assumes that the total incremental cost of the AQMP is \$15.7 billion with >90 percent, or \$14.6 billion, to be used as incentives to offset the cost of purchasing cleaner technologies which are deemed essential to meet our emission reduction targets. Of those numbers, it appears that ~\$4.4 billion is the incremental cost attributable to the stationary and mobile sources under SCAQMD’s authority with ~\$2 billion to be used for providing incentives for these same sources.

30 - 2

During the December meeting of the AQMP Advisory Group it was revealed that the SCAQMD is considering, and has explored, various fund raising strategies, but none have yet materialized to the point of certainty. To add to our concern, most of the strategies that were discussed would require voter and/or legislative approval. Some other fund raising strategies would require establishing public-private partnerships. It is not at all clear to us exactly what this means, what private entities would be involved, and to what extent they would be invited to be equity partners. And finally, we have been made aware that some consideration has been given to obtaining some federal funds from the incoming administration. Considering that the voters of California virtually turned their backs on the new administration in the recent election, it’s difficult to imagine that any request for funds to pursue regulatory programs that are likely to be incompatible with their new policies would be given serious consideration.

30 - 3

Another cause for concern among small business owners is that the AQMP is focused solely on accelerating the deployment of zero and near zero emission technologies from the sources under the SCAQMD’s authority. There seems to be no consideration that these technologies will be acceptable to the businesses for which they are intended. Because some permitted equipment which is sanctioned for use by small businesses is already so overly controlled, so as to make it inefficient to operate, the Staff should expect to encounter some reluctance by certain owner/operators to voluntarily opt to purchase and install emission reduction technologies that could present them with competitive disadvantages with similar businesses in other regions. We believe that our concerns are justified when the SER clearly states that some businesses would see production costs go up. We do not believe that the SCAQMD should put itself in the position of picking winners and losers and deciding which small businesses will survive and which ones will not.

30 - 4

The subject of cost-effectiveness has been a topic of controversy in many, if not all, AQMPs. The 2016 AQMP is no exception. Some segments of industry have advocated for analyses using the discounted cash flow method while others have advocated for the levelized cash flow (LCF) method. Most industry segments express misgivings about relying solely on an analysis using the REMI model. In their 2014 Socioeconomic Report, Abt Associates, Inc. strongly recommended augmenting the REMI analysis with alternative modeling tools and studies and surveys by

30 - 4  
(CONT'D)

credible industrial organizations, especially when calculating the cost-effectiveness of technologies for small businesses. The Alliance supports this recommendation.

SCAQMD has long favored using the LCF method because, in their opinion, it amortizes all costs incurred at present or in the future, into a yearly expenditure of equal amount over the project life. However, for the past five years, Alliance members have been engaged in a series of frustrating discussions with the SCAQMD staff over cost-effectiveness of Low NOx Burners, as it applies to Rule 1147. The primary reason for our frustration is that the SCAQMD's modeling and methodology does NOT recognize ALL of the costs incurred by the thousands of unique small business owners who are engaged in hundreds of different operations using Low NOx burners. Without conducting individual analyses of the way in which this technology is applied, it is impossible to render an accurate cost-effectiveness analysis. As a result, the "benefits" of this technology is grossly misrepresented. By applying this same approach to the technologies featured in the AQMP, we believe it significantly undermines the accuracy of the claimed cost-effectiveness benefits which are cited therein.

**A Discussion About Benefits**

30 - 5

Alliance members reject many of the assumptions made in the SER about the perceived benefits of the AQMP. In a separate letter, we explained the reasons for our skepticism about the professed adverse health and economic impacts of particulate matter in cases of mortality and morbidity. In our letter, we cited credible research that was conducted by a number of reputable scientists which produced contradictory results to many of the assumptions and claims made by researchers and used by SCAQMD to justify the goals set forth in the 2016 AQMP.

30 - 6

In Chapter 3 of the SER, we strongly question the accuracy of the methodology used to monetize the benefits associated with avoided premature deaths based on a population's "willingness to pay" for a small reduction of mortality risk in one year. When confronted with a medical diagnosis of cancer, a patient may be willing to pay many thousands of dollars to avoid dying prematurely from the disease, but may not have the ability to do so. In those instances, individuals are confronted with a difficult, alternative decision, that being a "willingness to accept" the consequences of an untimely diagnosis. This happens more often than not.

The approach described in the SER to measure an individual's willingness to pay suggests that it is more hypothetical than actual, and therefore subject to all the inherent biases of computer modeling. In a business environment, accurately gauging consumers' willing to pay for a product or service is critical for formulating competitive strategies, conducting value audits, and developing new products. Businesses simply can't afford the uncertainty and inaccuracy of relying on hypothetical assessments of consumers' willingness to pay. We believe the SCAQMD should also avoid relying on this approach to quantify the public health benefits of the AQMP.

**A Discussion About Incentives**

30 - 7

Contrary to the comments sometimes made about air pollution in Southern California, particularly by those who have little or no sense of our local history, air quality has improved markedly over the decades, and the SCAQMD can rightly claim credit for much of this success. For that matter, so can the sources under its authority. Billions – maybe trillions – of dollars have been invested by commercial and industrial businesses to make this dream a reality. While



30 - 7  
(CONT'D)

Alliance members concede that more can be done to make further progress in improving air quality, we also know that stationary sources, particularly small businesses, have few options left to them that would result in meaningful, affordable emission reductions. A point on which stakeholders seem to agree is that if all regulated stationary sources were shut down, the region would still be out of attainment.

30 - 8

Aside from the massive investment in technology and regulation the opportunity to breathe the air we enjoy in the present day has come at an even greater price with the loss of thousands of manufacturing businesses and good paying jobs. And this doesn't include the untold numbers of entrepreneurs who have avoided siting their businesses in the state because of the extreme regulation and high operating costs.

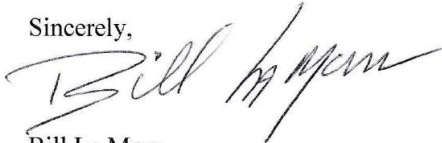
30 - 9

For the reasons stated above, the need to offer local businesses meaningful financial incentives to make additional emission reductions is absolutely essential. Because of the continuing uncertainty over the SCAQMD's ability to secure sufficient funding we fear a worst-case scenario whereby thousands of small business owners could be placed in extreme financial and legal jeopardy by being unable to comply with the new mandated emission reduction targets. For this reason, we urge SCAQMD to insert language in the AQMP that will relieve these sources of any liability arising out of circumstances not of their own making. We do not believe that this is analogous to requesting a waiver because these facilities have done all they can afford to do, but because of the influence of emissions from other sources outside the authority of the SCAQMD, the Basin continues to be out of attainment.

The Alliance appreciates the opportunity to submit these comments. We may submit additional comments during this process as the SCAQMD releases additional 2016 AQMP documents between now and the date set for the Governing Board adoption hearing.

Please contact me with any questions at (714) 778-0763 or at: [BillLaMarr@msn.com](mailto:BillLaMarr@msn.com)

Sincerely,



Bill La Marr  
Executive Director

cc: Philip Fine, Ph.D., Deputy Executive Officer – Planning, Rule Development & Area Sources  
Michael Krause, Planning and Rules Manager – Planning, Rule Development & Area Sources

## Responses to Comment Letter #30

Submitted by Small Business Alliance on January 4th, 2017

### 30-1

Staff appreciates the Commenter's continued participation in the 2016 AQMP development process and the input and comments provided during numerous public meetings.

The Small Business Analysis in Chapter 2 of the Draft Final Socioeconomic Report provides information on the potential impacts on small businesses in each industry from implementation of the Draft Final 2016 AQMP. The scope of the analysis was limited due to data limitations. Staff is committed to performing additional refined small business impact analyses during the rulemaking process when more facility-specific data will be available. In order to broaden the scope and to conduct a more in-depth analysis, staff would appreciate any assistance from the Commenter and other stakeholders to obtain additional industry- and facility-specific data and information on the potentially affected small businesses.

Regarding the 2014 Abt recommendation, please see staff response to Comment 28-5 that discusses staff's ongoing efforts to identify the most updated literature, methodology, and tools to assess socioeconomic impact that are small in scale, concentrated in a few industry sectors, or mainly affect small businesses.

### 30-2

The Draft Financial Incentives Funding Action Plan for the Draft Final 2016 AQMP provides information on many potential funding opportunities. However, a systematic assessment of these opportunities through the public process is necessary to determine the most likely scenarios and most feasible approaches to secure incentive funding. Moreover, the submission process of the State Implementation Plan (SIP) will allow sufficient time for this public process to take place. For further details, please refer to response to Comment 20-8-.

### 30-3

Contrary to the Commenter's claim, the 2016 AQMP is not focused solely on accelerating the deployment of zero and near-zero emission technologies from the sources under the SCAQMD's authority. Accelerated deployment of advanced clean technologies is proposed for both stationary and mobile sources. Additionally, a regulatory approach is proposed wherever and whenever technically feasible and cost-effective. While regulations will set standards for new equipment installations in some applications, incentive programs can accelerate the change out of existing equipment by increasing market penetration of new technologies, which may in turn help reduce costs for technologies that are currently too high for many owners and operators, if purchased without incentives. The incentive program participants may benefit additionally from increased energy efficiency and reduced maintenance that are characteristic of many of the zero and near-zero emission technologies, thus offsetting increases in their capital spending cost. If and when an advanced clean technology becomes sufficiently cost-effective, a regulatory approach may then be taken to achieve emission reduction targets.



The SCAQMD staff will continue to be sensitive to the financial and other constraints that are faced by small business owners and operators, and their affordability and competitiveness concerns will be carefully considered during rule and program development.

#### 30-4

Since the completion off the 2014 Abt review, staff has implemented many of the Abt recommendations including providing cost-effectiveness values for AQMP and rule development using both discounted cash flow (DCF) and levelized cash flow (LCF) methods. DCF and LCF values for the proposed 2016 AQMP control measures were reported in Table 2-4 of the Draft Final Socioeconomic Report to facilitate comparisons with cost-effectiveness reported by other agencies and organizations. Please see staff response to Comment 28-5 that discusses staff's ongoing efforts to identify the most updated literature, methodology, and tools to assess socioeconomic impact that tends to be small in scale, concentrated in a few industry sectors, or mainly affect small businesses. As mentioned in staff response to Comment 30-3, the SCAQMD staff will continue to carefully consider affordability concerns among small business owners and operators during rule and program development.

The Commenter incorrectly stated that SCAQMD has long favored using the LCF method. SCAQMD staff had previously used the LCF method for the assessment of control measures in earlier AQMPs; however, a decision was made in 1987 to switch to the DCF method for two reasons: first, it was then used extensively in major Fortune 500 companies; second, it was more versatile than the LCF method (SCAQMD 1989). In 1995, SCAQMD began to use DCF in determining compliance of the best available control technology (BACT) for minor sources. Since 1996, DCF has been the cost-effectiveness methodology used for rulemaking. For more details, please refer to Appendix 2-B of the Draft Final Socioeconomic Report.

For the purpose of comparison with other rules adopted and amended by the SCAQMD, staff used the DCF methodology for all of the assessments for Rule 1147. In evaluating the cost-effectiveness in Rule 1147, some stakeholders proposed cost components there were not consistent with the SCAQMD BACT guidelines and U.S. EPA methodology. However, those costs were assessed in the socioeconomic report prepared for the Rule 1147 adoption and amendment. Since 2015, all cost-effectiveness values for both AQMP and rulemaking have been presented using both DCF and LCF methodology.

Finally, SCAQMD and other regulatory agencies evaluate cost-effectiveness based on average costs derived from a range of costs sampled for a variety of equipment and processes that are sufficiently representative of what are used in the region. Contrary to the Commenter's claim that it is impossible to render an accurate cost-effectiveness analysis without an individual evaluation, a representative sample can yield a reliable cost-effectiveness estimate. Moreover, it is impractical to follow the Commenter's suggestion to evaluate the cost-effectiveness for every individual unit potentially subject to a rule requirement. During rule development, staff considers and analyzes outlier cases where compliance costs would be prohibitively high compared to compliance costs expected to be incurred by other potentially affected facilities.

#### 30-5

The response to the comment letter referenced in this comment can be found in "Responses to Comments on Appendix I of the 2016 AQMP," Response to Comment #1. Please also refer to staff response to Comment 12-1 on the Socioeconomic Report.

### 30-6

Please see staff response to Comment 22-3 for a detailed explanation of the willingness to pay (WTP) concept and the discussion of its theoretical background and the associated empirical evidence used to support the range of value of statistical (VSL) as utilized in the Draft Final Socioeconomic Report. The WTP approach was recommended by expert consultant Industrial Economics, Inc. (IEc) and their scientific advisor. It represents the state-of-science methodology that is also adopted in other regulatory benefit-cost analysis, such as those conducted by the U.S. EPA.

### 30-7

Staff appreciates the Commenter's acknowledgement of the efforts SCAQMD has made in improving the air quality over the decades. Staff analyzed the proposals in the control strategy to be sure the measures could be feasibly implemented and within an acceptable cost effectiveness range. As a result, it is not expected that each stationary source category can reduce emission by the exact same percentage. In some cases, more technical evaluation will need to take place, and thus reductions are deemed "to be determined" and are not committed to in the SIP. Incentives could assist those stationary measures whereby it is not yet cost effective to transition to cleaner technologies, but financial support will help ensure it is cost-effective for the user to operate cleaner equipment.

It is important to recognize the responsibility of the SCAQMD to ensure attainment of the standards in a timely manner and the District's authority over the stationary sources that could assist in meeting those required deadlines. As noted numerous times during the development of the Plan, eliminating all stationary source emissions would still not result in the standards being met, but that does not remove the responsibility of those sources, when cost-effective and feasible, to contribute to reductions.

### 30-8

There have been significant improvements in air quality within the Southern California Basin despite significant growth in GDP, jobs, and population, as shown in Figure 1-1 of Draft Final Socioeconomic Report. In fact, economic growth is needed to support investment in cleaning the air. The business community has made great strides in complying with some of the most stringent controls in the nation while remaining competitive. Despite these efforts, California has been one of the nation's silver linings in recent years, and the economy of the four-county region—Los Angeles, Orange, Riverside and San Bernardino—is expanding again, with clearly rebounding jobs and output numbers that have exceeded pre-recession peaks.

Regarding manufacturing job losses, Figure 1-3 of the Draft Final Socioeconomic Report clearly shows that the decline in manufacturing employment is not specific to the four-county region but it is exhibited also at the state and national levels. Economic studies have linked the nationwide manufacturing job losses largely to technological changes and global trade. Moreover, as mentioned in the staff response to Comment 23-1, staff has not been able to identify peer-reviewed economic studies that found clean air regulations as a driver of regional job growth trends.

### 30-9

The incentive programs will be developed in detail with comprehensive guidelines to be approved by the SCAQMD Governing Board. Public working groups or workshops will take place to discuss the guidelines and incentives, including fund distribution. The SCAQMD will establish working groups to include all

stakeholders and determine the most effective methods, balancing factors such as costs, emissions reductions, small businesses, Environmental Justice (EJ) areas, etc. Facilities that qualify for incentives shall submit applications during an open enrollment period. Projects will be evaluated based on criteria, including, but not limited to, emission reductions, cost-effectiveness, age of equipment, remaining useful life of existing equipment, EJ considerations, and small business status.

It is important to recognize the responsibility of the SCAQMD to ensure attainment of the standards in a timely manner and the District's authority over the stationary sources that could assist in meeting those required deadlines. Furthermore, under Federal Law, SCAQMD is unable to relieve small sources of emissions from mandated emission reductions in various source categories.

## Comment Letters Submitted to Multiple AQMP Documents

The following comments were submitted to both 2016 AQMP Appendix I: Health Effects and the Socioeconomic Report (SER).

- Bill La Marr of California Small Business Alliance submitted a comment to both the SER and Appendix I on August 26, 2016. For responses see 20-1 through 20-10 of the Response to Comments for Appendix I.
- Dr. Gordon Fulks submitted a comment to both the SER and Appendix I on August 15, 2016. For response see Response to Comment Letter #6 of the Response to Comments for Appendix I.
- Dr. James Enstrom submitted a comment to both the SER and Appendix I on August 15, 2016. For response see Response to Comment Letter #7 of the Response to Comments for Appendix I.
- Dr. John Dunn submitted a comment to both the SER and Appendix I on August 14, 2016. For response see Response to Comment Letter #5 of the Response to Comments for Appendix I.
- Dr. Stanley Young submitted a comment to both the SER and Appendix I on July 26, 2016. For response see Response to Comment Letter #1 of the Response to Comments for Appendix I.

Comments similar to those listed above were also submitted to the SER. The response to those comments can be found in response 12-1.

An additional comment letter on the Socioeconomic Report submitted by David W. Brown on August 31, 2016 is included as Comment Letter #69 on the Draft 2016 AQMP. The response can be found at <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/response-to-comments/2016-aqmp-rtc-3-of-4.pdf>.