BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Bay Area 2009 Clean Air Plan
Public Workshop
Multi-Pollutant Evaluation Methodology
June 11, 2009 Summary of Comments

Overview of Workshop

On June 11 2009, the Bay Area Air Quality Management District (District) held a public workshop at MetroCenter in Oakland to present the draft Multi-Pollutant Evaluation Methodology (MPEM) for public comment and input. The MPEM will be used to help evaluate control measures for the 2009 CAP based on their potential to protect public health and our climate. At this workshop, District staff presented the methodology, potential applications of the methodology, and examples of implementation. Approximately 37 people attended the workshop, representing public agencies, environmental and public health organizations, Bay Area businesses, and community members. Below is a summary of workshop proceedings and public comments recorded at the workshop. District responses to questions posed are provided in *italics*.

Ernest Pacheco, Citizens Against Pollution
Would like to see Stanford Professor Marc Jacobson's analysis of the health effects of local emissions of CO2 incorporated in the MPEM. The methodology should draw from all available research. Would like to see health effects of the proposed Russell City power plant evaluated; would like to see health effects of new sources evaluated.

We appreciate the information re: Professor Jacobson's recent work on local impacts of CO2 emissions. We will consider incorporating this into the MPEM after Professor's Jacobson's work has been thoroughly peer reviewed. The District intends to use the MPEM to help evaluate potential control measures for the 2009 CAP. However, at this point in time, we are not proposing to use the MPEM to evaluate permit applications or to perform new source review.

David Schonbrunn, TRANSDEF
Please delineate a legend to show the scale of ambient benzene concentrations depicted on maps in slides 20 and 22 of the workshop presentation.

Bob Vrauka, ESA
What model did you use in benzene modeling depicted in slides 20 and 22?

We used CAMX for toxics modeling and ozone modeling and CMAQ for PM modeling.

Rachel Hiatt, San Francisco County Transportation Authority
In Slide #15 where pollutants and health effects are considered, why is CO not included in pollutants considered, given that it is a criteria pollutant?

The Bay Area has attained all standards for CO since the early 1990s. Although there may still be some health effects associated with exposure to CO emissions in the Bay Area, for purposes of the CAP and the MPEM we have chosen to focus on PM, ozone and air toxics because our data suggests that these pollutants cause the greatest impact on public health.

David Schonbrunn, TRANSDEF
Interested in annualization of concentrations. For toxics, this corresponds to mean of monitoring stations, which makes sense. How was ozone annualized from a peak incident? How did you come up with annualized ozone concentration?

Ozone concentrations are based on daily 1-hour maximum monitoring readings for the full year, interpolated to each grid square. This provided the baseline concentrations. Then, for each grid square, the equation relating change in ozone concentrations to changes in NOx and ROG was applied to estimate the daily changes in ozone.

Points out that the District's ozone modeling has found that large precursor reductions are required to achieve meaningful reductions in ozone concentrations.

Brian Beveridge, West Oakland Environmental Indicators Project (WOEIP)
Interested in cost evaluation for health effects. Would like to see more detail on willingness-to-pay. What does this mean, and who is willing to pay?

Please refer to Section 5.1 on pp. 34-35 of the draft MPEM Technical Document. Air District staff has used willingness-to-pay data whenever available because it captures a wider range of actual costs compared to cost-of-illness approach which only includes direct costs to treat an illness.

Where are the willingness-to-pay numbers drawn from?

The willingness-to-pay data is drawn from a number of studies which are referenced in pages 44-47 of the MPEM Technical Document.

Ernest Pacheco, Citizens Against Pollution
Of the steps outlined in the MPEM, only Step 1 (estimate emissions reductions) and Step 5 (economic valuation) are applied to greenhouse gas emissions. He recommends assessing exposure and health effects associated with CO2 as is done with the Jacobson model.

See response to previous comment by Mr. Pacheco above.

Paul Francke, UCSF
Does MPEM take into account the effects of pricing and tolls on congestion and pollutant concentrations? Does MPEM take into account the different background risk levels across the region? What about costs? Does the plan identify revenue to reimburse costs of implementation? Can the MPEM be applied to that measures or actions that increase pollution?

Although the MPEM could potentially be expanded to capture other types of costs and benefits beyond air quality, at this time the MPEM only estimates the dollar value of health and climate impacts associated with reductions in ozone , PM, air toxics, and greenhouse gases .

Rachel Hiatt, SFCTA
Please explain more about how emission reduction estimates are developed per Step One, of the MPEM.

Engineers and planners in the District's Planning Division prepare emission reduction estimates for potential control measures based on the District's emission inventory, emission factors provided by the Air Resources Board, etc. In the case of transportation control measures, the Air District and MTC collaborate to develop emission reduction estimates. The MPEM uses these emissions reduction estimates in Steps 2-5 of the method.

David Schonbrunn, TRANSDEF
Calls attention to a recent CMAQ air quality workshop put on by Department of Transportation (Caltrans).

Brian Beveridge, West Oakland Environmental Indicators Project
This is a regional plan. Is there more targeted localized risk assessment data derived from the District's Community Air Risk Evaluation (CARE) program? How do these two efforts intersect?

The CARE air toxics inventory will be projected to future years, and the District will perform modeling to estimate impacts of CARB and District regulations on improving air quality in impacted communities.

David Schonbrunn, TRANSDEF
(In reference to Slide #33 in staff presentation) Was the critical role played by carbonaceous PM2.5 a surprise to District staff? Does carbonaceous PM2.5 include road dust? The high concern placed on carbonaceous carbon speaks to the value of reducing VMT.

Carbonaceous PM2.5 includes fine PM from combustion (e.g. diesel, gasoline, and natural gas, commercial cooking, and wood smoke). It does not include road dust. Most road dust particles are relatively coarse. According to the District's emissions inventory, road dust accounts for ~ 40% of PM10, but only 14% of PM2.5. (Note: District staff believes that emission factors for road dust may be over-estimated. Source apportionment of PM2.5 suggests that road dust is perhaps 2% of ambient PM2.5 concentrations on an annual basis.) There has been a great deal of effort to reduce diesel PM emissions in recent years, but the pie chart on Slide #33 calls attention to the fact that fine PM from other (non-diesel) sources accounts for a large fraction of the total cost of overall health impacts from air pollution in the Bay Area. Therefore, we need to reduce emissions from all sources of fine PM, not just diesel.

Dennis Bolt, Western States Petroleum Association
Interested to see how these studies extrapolate to the real world. Gives the example of San Leandro where there was the highest rate of cardio infarction but with good access to health care which is the determinant of outcome. If you make it harder to do business, you drive out jobs, lower tax revenues, and reduce access to health care, which are key childhood health indicators. If we drive out jobs and damage the economy in the effort to improve air quality, this will cause impacts that offset positive health impacts. Cites 1982 when there was a much higher rate of health insurance coverage than today, but poor air quality and lower mortality from cardio infarction. Are we better off overall?

In preparing air quality plans to date, we have evaluated control measures primarily on the basis of cost-effectiveness; this approach emphasizes compliance costs, but does not quantify

potential benefits. The MPEM is intended to help provide a better understanding of the potential benefits of control measures. On balance, District staff believes that good air quality is beneficial to the Bay Area economy. In addition to reducing health costs, clean air is positive for attracting tourism, for attracting and retaining a skilled and educated work force, for enhancing residential property values, etc. Estimates of the benefits to the Bay Area of air quality improvements since the 1970s using the MPEM run into the billions of dollars annually and several thousand fewer deaths per year.

Ernest Pacheco, Citizens Against Pollution
Notes that Air District grants programs can create jobs and increase tax base.

Andy Wilson, Citizens Against Pollution
The MPEM estimates benefits on an annual basis, and based on what I would be willing to pay. What is the contribution of emissions from a localized Community Choice Aggregation program to emissions in our air basin? Wants to see more coordination of the CAP with initiatives like the South Hayward BART Station development and Quarry Village in Hayward.

Multi-pollutant planning is a new concept that we are exploring for the first time with this plan. The MPEM is a new tool that we have just developed to aid in this effort. We are still considering the range of potential applications that the MPEM might be used for. We do not expect that the 2009 CAP and the MPEM can address and solve all issues that confront the region. But we believe this current effort does represent a step in the right direction that we can build on in future years.

Jenny Bard, American Lung Association
Commends District for multi-pollutant planning approach and for developing the MPEM. Echoes request to make reference to Jacobson's testimony in MPEM, and to include it in the record of public comment. This should include his testimony on expanding the scope of greenhouse gas (GHG) analysis black carbon, which is a leading cause of global warming and a significant radiative forcer. ALA would like to see additional controls on wood smoke. In the transportation arena, ALA would like to see the cost of implementing all control measures compared to adoption of a strong regional Bay Area GHG target, that is compare individual measures in aggregate to a strong GHG target, and relate to the Joint Policy Committee's current efforts. Recommends there be a measure that requires regional transportation authorities to meet GHG goals of AB32. ALA is in full support of aggressive transportation and pricing measures. *(Please see the full text of ALA public comment attached to these meeting notes.)*

The GHG impact of black carbon is not considered in the MPEM, but the health effects of black carbon are.

John Mikulin, CCEEB
Offers kudos on the innovative approach featured in MPEM and recognizes that innovation can result in challenges. Assessing tradeoffs between GHGs, criteria pollutants, and air toxics will become increasingly important.

Scott King, ARB
ARB appreciates the Air District's groundbreaking work in this area. We think this is the future, integrating all these things with a multi-pollutant methodology. The Air District has shown very impressive progress in a short time and we are excited to see the final product.

David Schonbrunn, TRANSDEF
- Would like to see control strategy structured in a goal-oriented way, based on defined end points (such as 1%, 5%, and 10% decrease in VMT) with the control measures developed to obtain these endpoints. Air District staff would work backwards from desired outcomes to develop a control strategy package, including pricing measures, that result in these VMT reduction targets for the region.
- Struck by how limited and dubious the offset programs for the Climate Action Reserve program are. He proposes a control measure to establish a program to generate GHG emissions credits awarded for implementation of the control measures contained in the CAP, for local smart growth, and for attaining regional land use/transportation goals. This could offer incentive for voluntary actions and provide revenue to kick start the funding for the region's FOCUS program.

Brian Beveridge, WOEIP
- For Slide 33 which shows a pie chart entitled *Benefits of a 1% reduction in Bay Area Pollutants*, are the monetary amounts based on social costs?

  The figures are based on the dollar benefit of health impacts that would be avoided by reducing ozone, PM, and air toxics. For GHGs, the benefits are based on a value of $28/ton per ton of CO2 reduced.

- What is the price of $28 per ton of GHG based upon?

  This figure is derived from a meta-study of the social cost of greenhouse gas emissions authored by Richard Tol in 2005. The Tol study reviewed results from 211 studies that estimate the social cost of GHG emissions.

- Is there any data that compares regional air quality measurements to health insurance coverage for the Bay Area? Would like to see how air quality maps to health coverage.

  The Air District does not have information regarding health insurance coverage. County health departments may have this information. The Air District and county health departments could potentially collaborate in the future to map air pollutant concentrations compared to health coverage.

Andy Wilson, Citizens Against Pollution
A pilot flying through an emissions plume, such as that emitted from the proposed Russell City power plant in Hayward constitutes a sensitive receptor. Building a power plant 1.5 miles from an airport means that pilots will fly through a plume; pilots should be considered as sensitive receptor. He requests that Air District staff perform analysis of the exposure.

BAAQMD Clean Air Plan 2009
June 11, 2009
Jenny Bard
American Lung Association in California Comments

The American Lung Association in California would like to thank the air district for the incredible work that has been put into the development of the Clean Air Plan, and in particular the methodology. Reading through this document reminds me of the introduction to Star Trek in exploring space: "Go Boldly Where No Man Has Gone Before." I particularly would like to recognize Dave Burch for his hard work and commitment on the Clean Air Plan - both being responsive to the community and moving this very complex plan forward. It is unprecedented in its scope and complexity.

While we will be submitting suggestions for additions to control measures in the Clean Air Plan, we also wanted to emphasize the importance of reducing black carbon that will result in immediate health benefits as well as slowing of global warming. Although the plan recognizes that black carbon PM2.5, or soot, also contributes to global warming it was not included in the methodology both because the global warming impacts of black carbon are not well-understood and have not been fully confirmed by the Intergovernmental Panel on Climate Change (IPCC). We encourage you to include, perhaps as an addendum, an analysis of the health benefit and societal benefits of black carbon reductions, because of their huge potential co-benefits. I would like to submit the May 18 testimony of Mark Jacobsen to the US EPA to include black carbon in the Endangerment Finding for your consideration, who demonstrated that black carbon was the second leading cause of global warming after carbon dioxide in terms of radiative forcing, and in 2002, its control was the most effective method of slowing warming. Given that black carbon stays in the air for 14 days, compared to carbon dioxide which remains for decades, the benefits of reducing black carbon are potentially even greater.

The plan has incorporated many important recommendations, and clearly recognizes the significance of strong measures needed to help us reach our greenhouse gas reduction goals as well as reductions in PM and air toxics to protect public health immediately. Again, we commend the air district for developing a multi-pollutant plan to reduce ozone, PM, air toxics and global warming gases.

We offer several strengthening measures to the plan for your consideration that will help the air district meet its goals to attain air quality standards, protect public health in all communities, protect climate and ecosystems, as well as align with recent recommendations adopted by the air district Advisory Council.

These are in the area of

- combustion processes from wood and biomass burning, as well as cooking
- incentivizing low emission vehicles
- Accelerating installation of EV infrastructure

- Minimizing exposure to diesel emissions
- Expanded air quality modeling and hot spot analysis outside of CARE priority areas

I won't be itemizing those today but will submit in writing.

Although wood smoke, a likely carcinogen, was not included as a pollutant in the plan because the health risks have not been quantified, we would encourage you to develop a methodology to support additional control measures, including bans on smoke from barbecue and wood fired pizza ovens, emissions from agricultural burning located near population areas, and enforcement of the existing wood burning regulation in the evenings and on weekends. Wood smoke pollution at the neighborhood level is a common and significant problem in many areas and the cumulative health risks are potentially greater than other exposures presented in your methodology. And again, because of the co-benefits of reducing global warming, these measures could best serve the goals of the multi-pollutant reduction plan.

Recommendations:

Page 3 Stationary Sources

Combustion Process

Open Burning – Add "and proximity to residences" to first bullet point.
Further limit agricultural burning based on amount to be burned *"and proximity to residences"*

Recommendation: Add "Residential Wood Burning" as a control measure, and as Key Element *"Provide enforcement evenings and weekends (when the majority of wood burning takes place)."*

Cooking

Recommendation: Add "Develop regulation to control pollution from wood fired ovens, barbecue establishments located in residential areas."

Page 12 – Mobile Sources

Promote clean, fuel efficient vehicles

- Continue to implement the District's programs to provide incentives for *low-emission* and fuel-efficient vehicles.

Recommendation: To encourage the greatest use of vehicles that are zero emission or super ultra low emission, provide the greatest incentives for those than can produce zero tailpipe criteria emissions and ultra low carbon equivalent emissions, and further define low emission to include only the cleanest available vehicles.

Define “low emission” throughout the Clean Air Plan as the cleanest available vehicles.

ZEV and Plug-in Hybrids

Recommendation: Encourage all governments in the Bay Area to develop and expand *private and* public EV infrastructure

Add “private” to the recommendation “Partner with private, local, state and federal programs to install and expand public *and private* charging infrastructure” to include commercial, residential, including multi-unit housing, and areas where parking garages are not available.

Page 13

Thank you for including “Support legislation to include motorcycles in the state’s biennial smog check. This legislation was co-sponsored by the American Lung Association in California, and though it failed this year, we hope to address motorcycles in future regulations.

Clean Air Communities Initiative/Community Air Risk Evaluation

Recommendation: Add the following Key Element

- Develop targeted regulations using a cumulative impacts approach in collaboration with Bay Area Environmental Health Collaborative

Indirect Source Rule

Recommendation: Add the following bullet point as Key Element

- Work with local governments through Joint Policy Committee to support strong regional greenhouse gas reduction targets beyond state mandates to accelerate regional smart growth and transportation planning and to reduce vehicle miles traveled

Minimize exposure to local diesel emissions

Recommendation: Add the following bullet points as Key Elements

- Require “hot spot” analysis of regional projects (roadway expansion), and/or coordinate with transportation project sponsors who may be responsible to conduct “hot spot” analysis
- Implement expanded air quality modeling beyond CACI and CARE to include communities near roadway areas

Goods Movement

Recommendation: Add as Key Element

- Support implementation of container fees at the Port of Oakland to pay for air pollution mitigation and other public health programs.

As we stated in our previous letters, the Clean Air Plan must accelerate greenhouse gas emission reductions from transportation and land use sectors. Transportation is the largest contributor to global warming and air pollution in the Bay Area, representing 50% of greenhouse gas emissions and 74% of nitrogen oxide emissions that contribute to smog and particulate pollution. Cars and light trucks make up the majority of the greenhouse gas emissions from the transportation sector.

Other suggested Control Measure

Strong Regional Greenhouse Gas Reduction Target

Because the work and cost involved in implementing all of these individual control measures would be significant, we would like the air district to consider analysis of the cost savings of an adoption of a strong regional greenhouse gas reduction target which could help drive and accelerate reductions in air pollution and greenhouse gases more quickly from local land use and transportation decisions – and thus achieve greater and more immediate health and societal benefits. Although this may be beyond the scope of this plan, this comparison and cost analysis could help support an even stronger regional GHG reduction goal that might be otherwise occur, provide greater public health and GHG reduction benefits, and assist the work of the Joint Policy Committee to set strong and achievable SB 375 GHG reduction goals from land use and transportation sector. BAAQMD is currently working with MTC, ABAG and BCDC through Joint Policy Committee to support strong regional greenhouse gas reduction targets to accelerate regional smart growth and transportation planning and to reduce vehicle miles traveled.

County transportation plans must meet GHG reduction goals

Additionally, because of the urgency of the need to reduce vehicle miles traveled, we would like to recommend a Control Measure relating to requiring county transportation plans to show how they will meet the greenhouse gas reduction goals set by the Metropolitan Transportation Commission – 40 percent by 1990 levels by 2035. I am submitting a letter prepared for the Sonoma County Transportation Authority by a group of organizations in Sonoma County, including the American Lung Association in California, as an example to help accomplish this goal.

Webinar/webcasting incentives

I took the bus and BART to attend the meeting today from Santa Rosa, leaving at 10 am and will not get home until after 6 pm. We would like to see the air district have webcasting capabilities for all public meetings to encourage participation and reduce vehicle trips. We would also like to see a Key Element under transportation added to include "Promote and incentivize webcasting among government, business and other organizations" and to quantify the public health and greenhouse gas reduction savings

and avoided costs from reduced vehicle miles traveled to and from meetings in the Bay Area from all these groups.

We are in full support of the suggested transportation, land use, and parking pricing mechanisms to reduce vehicles miles traveled.

We are especially pleased to see the many control strategies to reduce cumulative impacts of pollution in Bay Area communities already burdened by high levels of disease and death from air pollution,

We believe the air district is being bold and aggressive in its list of feasible control strategies and commend the board and staff for supporting this effort. Our suggestions are to strengthen the plan to achieve the greatest immediate public health benefits and long term but urgent goal of reversing global warming.

We look forward to working with the air district to achieve regional and statewide air pollution and greenhouse gas reduction goals as quickly as possible. Thank you for your consideration of these comments.