

**Minutes for the 2016 Scientific, Technical & Modeling Peer Review (STMPR) Advisory
Group Meeting #6**

Wednesday, March 16th 2016

Socioeconomic Session

1. Welcome

Joe Cassmassi, Planning and Rules Director of SCAQMD's Planning, Rule Development and Area Sources Division, called the meeting to order at 1pm. Mr. Cassmassi announced that he will be retiring at the end of the month and this will be his last STMPR meeting. He asked for self-introductions of meeting attendants. Priscilla Hamilton and Dr. Anthony Oliver, both new Air Quality Specialists in Socioeconomic Analysis gave a brief description of their background. Ms. Hamilton earned a Master's degree in Public Policy at the University of Southern California and prior to joining the SCAQMD was a Senior Research Analyst at the Milken Institute. Dr. Oliver has recently completed his Ph.D. dissertation at the University of Illinois at Urbana-Champaign, where he did research on the economic and GHG emission effects of energy policies. All other attendants at the meeting introduced themselves and are listed at the end this document.

(The complete set of memos, presentations, and papers for this meeting can be downloaded at: http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=STMPRSocio_031616)

2. Approval of December 10, 2015 Minutes

Mr. Cassmassi requested comments on the minutes of the last STMPR meeting. There were no comments and the minutes were approved.

3. 2016 AQMP Status Update and Baseline

Dr. Elaine Shen, Program Supervisor of SCAQMD's Socioeconomic Analysis Group gave an update on the schedule of the 2016 Air Quality Management Plan (AQMP). In addition, she discussed the concept and practice of using the Southern California Association of Governments' (SCAG) Growth Forecast as an AQMP baseline of analysis. She also reviewed Abt Associates recommendation for baseline definition. Presentation materials are available at the above URL.

Comments/Questions and Staff Responses

- Bill LaMarr representing California Small Business Alliance expressed concern about the comment period and the delay in releasing the socioeconomic analysis (SEA). Mr. Cassmassi stated there would be plenty of time to comment. He stated that once a draft AQMP is released, it typically takes 4-6 months to complete the public process. He stated that although the SEA typically comes after release of the AQMP, there would also be ample opportunity to review/comment on it. He noted many of the elements are already in the open insofar as there have already been 5 STMPR meetings and the information presented at those meetings is available for review/comment. Mr. Cassmassi noted that

this is not a rush job and that the process was supposed to have been completed in 2015. Dr. Shen further explained that the socioeconomic analysis must take place after certain other work has been completed. For example, it requires both air quality modeling and cost estimates from rule writers as inputs to the analysis and thus cannot be completed until other work has been completed. Dr. Shen also stated that some of the preliminary socioeconomic write-ups were being released at the meeting so that there would be ample time for stakeholders to comment on them. Dr. Dabirian, Program Supervisor of SCAQMD's Socioeconomic Analysis Group, added there will be additional opportunities for commenting in upcoming STMPR meetings when there are preliminary socioeconomic analysis results.

- Dr. Rob Farber, Consultant, asked about unintended policy impacts over time that can have an impact on society, such as a drought. Mr. Cassmassi responded that those types of things can't necessarily be projected in the future.
- Steve Levy, Director of the Center for Continuing Study of the California Economy (CCSCE) asked about recent changes in the world oil price and its implications for analysis. Dr. Shen said that may have some effect on the results that come from the Emission Factors (EMFAC) model, and that this question could be directed toward SCAQMD staff that work with it. Dr. Farber said that we don't know what all of the effects of this price change will be yet. Mr. Levy mentioned that this 2016 adapted baseline had been done in 2013 and he doesn't know either how recent changes may affect the baseline, but that lack of knowledge is not comforting. Dr. Frank Wen with SCAG told Mr. Levy that when the next RTP/SCS growth forecast is done, probably sometime in mid-2017, SCAG staff would like to look at how energy prices affect the SCAG region. SCAG also takes into account oil price projections one of the sources for this is Energy Information Administration (EIA). Dr. Wen also thought that Mr. Levy may want to consider how demographic changes may affect energy prices. Dr. Shen said that staff may not be able to model these factors in the upcoming AQMP socioeconomic assessment, but they could be discussed qualitatively.
- Dr. Farber asked about if review of new literature and methods regarding secondary benefits, such as visibility improvement benefits would be incorporated. Dr. Shen said that this may be included in analysis of future AQMPs, but that no commitment has or can be made to quantifying these benefits because the Abt Associates review of the SCAQMD socioeconomic assessments recommended updating the methods used for quantification. Before that, SCAQMD staff will discuss these benefits qualitatively at the minimum.
- Dr. Jin Huang with Abt Associates asked if Dr. Shen was planning to include any discussion about updated methodology or literature. Dr. Shen said that benefits such as visibility, material, and agriculture will be discussed qualitatively in the analysis with reference towards previous methods and quantification, but that updates would be left to future AQMPs. Dr. Wen said that he thought these benefits had been quantified

previously. Mr. Cassmassi responded that some of these methodologies are over twenty years old and the benefits of health improvements dominated other benefits. There also wouldn't be much visibility benefit and agriculture is shrinking sector in the basin. He said that it wasn't a good use of resources to expend on quantifying relatively small benefits; given the importance of public health, staff will focus on enhancing health analysis for this round of the AQMP.

- Mr. Levy commented that he thought SCAQMD had a very narrow definition of what air quality measures are considered in the analysis. He has concern that the benefits of previous air pollution reducing measures from SCAQMD or from the RTP/SCS, while in the baseline, will not be understood by readers. Dr. Shen responded that SCAG has agreed to provide a summary table of the benefits and costs of RTP/SCS to be included in AQMP Appendix IV-C.
- Mr. Levy commented that he thought the proposed analysis will also be limited because it does not include past air quality measures; he thinks that by only focusing on the incremental benefits of 2016 AQMP, it would not give an accurate picture of the overall air quality improvements in the South Coast Air Basin (SCAB). Mr. Cassmassi responded that Mr. Levy's concerns have been noted, but that for purposes of analysis past air quality measures are in the baseline and the socioeconomic analysis will only consider the incremental benefits and cost of the 2016 AQMP.
- Dr. Farber commented that anecdotally people understand that there have been significant improvements in visibility over the years, and that the methods for quantifying these benefits are messy. Therefore, it is simply enough to state that visibility has improved. Even without quantification people appreciate the improved visibility, which allows them to see the San Gabriel Mountains. Mr. Cassmassi added that using concentration-response (C-R) functions and willingness-to-pay (WTP) estimates for mortality risk reductions allows for quantification of health benefits; the value of a risk reduction to avoid a statistical mortality will have a midpoint of about \$9 million. Dr. Shen assured Dr. Farber that the visibility benefit will be qualitatively discussed.
- Dr. Huang, following up on what Mr. Levy had said in a prior comment, was concerned that people may be confused between what are incremental improvements and what are cumulative improvements. She suggested being clear to define that the incremental improvements are being considered in the analysis and that these are different from cumulative improvements.
- Mr. LaMarr commented that, on page 6-9 of the Abt Associates' report, it states that small businesses are not represented in the Regional Economic Models, Incorporated (REMI) model, and asked why this wasn't discussed in the baseline adjustment and how cost for small business will be considered in the AQMP. Dr. Shen, responded that the analysis will be two-fold, first the cost of control measures will be compiled by staff, and

these cost and the data and assumptions as they apply to small businesses will be made clear in the report whenever practical. The second part of the analysis will look at the potential economic impacts on the businesses. Scott Nystrom with REMI responded that small businesses are part of the model, but that there is no concept of firm size or number of firms in a macroeconomic model. The small business are included as part of the industry in aggregate, but there is no distinction made by firm size. Mr. Cassmassi said that staff is looking into developing the kind of methodology that can consider these small scale and small business impacts; Dr. Oliver has experience with methodologies that could potentially be used for this from his dissertation research. Dr. Shen added that the SCAQMD currently has a contract to provide information on this topic.

- Mr. Levy asked for explanation about the year 2031 as the target year. Mr. Cassmassi responded that 2031 is the attainment date for 8-hour ozone standard. That is what the air quality modeling and socioeconomic analysis will be based on, as well as the BenMAP analysis.
- Scott Weaver with Environmental Resources Management asked for further explanation of a slide that stated that “incentive programs financed by public funds may not be fully counted as costs to the government sector depending on whether financed by existing revenue sources”. Dr. Shen replied that there hasn’t been anything finalized yet for the control strategies, but gave a hypothetical example, that if funds were already collected under another program and repurposed for an AQMP measure, the costs would be mentioned in the analysis, but that it wouldn’t go into the REMI model for economic impact analysis because these funds are already being collected. Mr. Weaver followed up asking about if funds were redirected from a source different from which they were originally intended for. Dr. Shen responded that she would need the specific details of that to be able to give an answer. Dr. Dabirian added that if the money is from a federal source, it is not entered as a cost into REMI. Dr. Shen added that the amount of federal funding was typically very small relative to the federal budget, but if that wasn’t the case, it may be necessary to recalibrate the REMI model.
- Dr. Julia Lester with Ramboll Environ said that at a November California Air Resources Board (CARB) meeting, CARB staff said they would release information on the mobile source strategy, including the incentive dollars. Mr. Cassmassi responded that, in a recent meeting with CARB it was discussed how much money would be required; the dollar amounts were very large. Mr. Weaver said that there was large unfunded investments in the SCAG’s RTP/SCS, which are in the SCAQMD’s baseline. Mr. Cassmassi replied that he thought much of this would be addressed in AQMP Appendix IV-C, which is being prepared by SCAG staff.

4. Baseline Demographic and Economic Projections

Ms. Hamilton presented the baseline demographic and economic projections as derived from the draft 2016 SCAG Growth Forecast. Presentation materials can be found at the above URL.

Comments/Questions and Staff Responses

- Dr. Farber asked if the labor participation rate estimate took into account the decline of pension programs and correspondingly people now having to work longer, to 65 or 70 years old. Dr. Wen replied that in the SCAG forecast for the “65 and above” age cohort the labor force participation was assumed to almost double. Historically, the labor force participation was about 15-20%, but that had been doubled to 30-40% in the forecast to account for older workers. But because the Baby Boomer generation is getting older, the total labor force still decreases.
- Mr. Levy wanted to clarify that, in the growth forecast, higher population growth in the Inland Empire does not cause the higher employment growth; they are allocated separately taking into account zoning and land use policy. At the regional level the job growth determines the population growth in the forecast.
- Mr. Nystrom noted that, while manufacturing employment has declined over the past decades, manufacturing output has actually increased over that time.
- Dr. Farber said that there was a political move to change these trends in manufacturing employment decline. Mr. Cassmassi replied that what is being presented is data and forecast from reliable sources, labor policy is not being discussed.
- Mr. Levy said that the regional data they work with are somewhat technical. He doesn’t think heavy weight should be placed on the industry distribution within the counties, because it is beyond what is known technically. The regional numbers are a lot more certain than the breakdown into the metro areas. Dr. Shen asked Mr. Levy if he could work with the SCAQMD staff if there are any revisions necessary to the write-up.
- Dr. Farber asked about the perception that California is not business friendly because of things like taxes, regulations, or the cost-of-living, and if this perception has that actually been demonstrated in the data. Ms. Hamilton replied that while there are downward trends in some sectors, others are increasing; she doesn’t think these can be directly attributed to the aforementioned factors, but it is not a settled question. Mr. Levy responded that the answer is that “the California and regional economy have not performed poorly”. The answer to the question “could it have performed better under different policy?” is unknown. He mentioned anecdotally, that Texas is considered to be business friendly, but it has lost a large number of mining jobs as world oil prices have declined, while California has gained a large share of technology jobs; regulation didn’t alter any of these trends.
- Dr. Gloria González-Rivera with University of California, Riverside asked about the uncertainty associated with forecast that go fifteen years into the future. She suggests using some sort of interval or high and low values to give a sense of the uncertainty. Dr.

Shen said that constructing something like a confidence interval may not be possible because of the methods SCAG uses to arrive at their forecast. Dr. González-Rivera agreed that a statistical interval would be too difficult, but it is still necessary to communicate to the reader the uncertainty associated with these projections. Mr. Cassmassi said that having a retrospective study on SCAG's forecast performance had been discussed with SCAG staff.

- Dr. Xinqiu Zhang, Air Quality Specialist at SCAQMD, asked why SCAG's forecast from 2016 was being presented as the initial year rather than data from base year 2012. Ms. Hamilton responded that it is the first forecast year. Dr. Shen added that it is used for presentation purposes.

5. Adjusting REMI Baseline: Employment Update

Dr. Oliver presented the procedures used to adjust the REMI baseline employment forecast based on the draft 2016 SCAG Growth Forecast. Causes and magnitudes of inconsistencies, as well as their potential implications on the analysis results were discussed. Presentation materials are available from the above URL.

Dr. Shen emphasized that there were different values of labor productivity between those from REMI and those implied by SCAG's forecast. She asked STMPR members if they had any guidance on this potential issue.

Comments/Questions and Staff Responses

- Dr. Huang asked, since the SCAG employment forecast are provided as levels instead of rates, why levels are not entered into REMI. Dr. Oliver responded that the differences between the two forecasts in terms of self-employment levels and some regional differences result in significant difference between REMI's employment level and SCAG's employment level; if SCAG's employment levels are entered into the REMI employment update function, these significant differences prevent the REMI model from solving and providing any results. Dr. Shen added that this led to error messages in the software. Mr. Levy added that the implications of Dr. Huang's question may or may not have issues for analysis and he would write to SCAQMD staff about it later.
- Dr. Farber asked why the adjusted REMI growth rate was so close to SCAG's. Mr. Cassmassi responded that we are attempting to get REMI to mirror SCAG's growth rate. Dr. Oliver added that this is a good result for the employment update of REMI.
- Dr. Farber asked if labor productivity by industry had been increased overall by this update. Dr. Oliver responded that on average the labor productivity from the adjusted REMI and the default REMI were approximately the same, but some industry's labor productivity had been increased while others had been decreased. SCAG's implied labor productivity values are generally higher.

- Dr. Dabirian asked if the employment effects coming from the updated REMI model would be considered conservative estimates. Dr. Oliver said that for most industries the labor productivities used in REMI would predict greater employment effects (positive or negative) than those from SCAG, but it would differ by industry.

6. Adjusting REMI Baseline: Population Update

Dr. Shen presented the procedures used to adjust the REMI baseline population forecast based on the draft 2016 SCAG Growth Forecast and discussed the adjustment results. Presentation materials are available at the above URL.

Comments/Questions and Staff Responses

- Mr. Levy commented that the most important point is that for both REMI and SCAG, the population projection is consistent with and derived from the employment projection. Dr. Shen said that she understands that this is the case with SCAG's forecast and would check with REMI if this is the case with their forecast.
- Dr. Farber asked generally about how accurate all of the projections of the future have been. Dr. Wen replied that SCAG had studied projections made from as far back as the 1970s. He said that generally when looking at about a 5-year projection the absolute error has been about 5%; for every 5-year increment it is a multiple of this error. He said employment is even more difficult to forecast. Mr. Levy wanted to clarify that, the error in forecast can come from different sources, and not all of those sources such as birth-rates or immigration policy were the responsibility of SCAG to forecast. Mr. Cassmassi asked if Dr. Wen or Dr. Rongshen Luo also with SCAG could present these results at the next STMPR meeting, and they agreed.

7. Contract Updates

Dr. Dabirian gave an update on the contract the SCAQMD has with Industrial Economics, Inc. (IEc) to provide guidance on evaluating economic impacts at small scale or on small businesses. IEc will examine the past work SCAQMD has done to analyze small business/scale impacts. IEc will provide a review of the latest literature and models for analyzing these types of impacts. The status of the contract is: SCAQMD staff have received one report includes an examination of the SCAQMD's past analyses, a literature review, and review of economic models that may have potential for analyzing small business/scale impacts. SCAQMD staff is in the process of providing comments on this; once the draft report is ready it will be made publically available. The next step in the contract is for IEc to recommend what type of analysis SCAQMD staff should use to analyze these impacts.

Comments/Questions and Staff Responses

- Dr. Shen added that the preliminary report from IEc is being internally evaluated for factual accuracy, but once it is ready, it released to the public. Mr. Cassmassi added that this is the fourth or fifth contract that has been initiated in response to the Abt Associates report.

- Mr. LaMarr commented that there are different entities that have data on small businesses. One of his concerns is that any policy that causes larger business to make negative changes has a larger effect on interrelated small businesses, by a multiple of about 2.5. Dr. Dabirian responded that IEC is reviewing Input-Output type models that take the multiplier effect into account.

Dr. Shen gave updates on other contracts:

- At the last STMPR meeting, Professor Erdal Tekin at American University presented his report on health effects of unemployment. This final report has been posted on the SCAQMD website and the notice about it has been sent out.
- Henry Roman and his team at IEC are revising the reports on health effects and evaluation based on comments received at the previous STMPR meeting. It is expected for the reports to be ready soon and then be released to the public. Mr. Cassmassi reported that the IEC team came to SCAQMD last month and gave training on the BenMAP software to eight SCAQMD employees.
- IEC is also working on the environmental justice contract. Deliverables from this contract are expected in the next month.
- There is a contract to review the discussion between Abt Associates and REMI about the modeling of amenities within the REMI model. The final report by Professor Michael Lahr at Rutgers University is almost completed. It will be released to the public once it is.

8. Other Business

- Mr. Cassmassi made an announcement on behalf of Dr. Wen about the “27th Annual Demographic Workshop” put on by SCAG and presented by the USC Price School of Public Policy.
- Mr. Cassmassi said that the next STMPR meeting will take place once preliminary BenMAP results are available. Dr. Shen added that she thought there might be one more meeting before that to discuss the environmental justice contracts and SCAG’s retrospective analysis of their growth forecast.

9. Public Comments

There were no additional public comments.

The meeting was adjourned around 3pm.

Members Present

Rob Farber, Consultant

Gloria González-Rivera, Professor, U.C., Riverside

Frank Wen, Southern California Association of Governments

Via telephone

Carol Bohnenkamp, U.S. EPA Region IX

Jin Huang, Abt Associates

Stephen Levy, Center for Continuing Study of the California Economy

Fred Lurmann, STI

Scott Nystrom, Regional Economic Modeling Inc.

SCAQMD Staff

Teresa Barrera, Senior Deputy District Counsel

Joe Cassmassi, Planning and Rules Director

Shah Dabirian, Program Supervisor

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Priscilla Hamilton, Air Quality Specialist

Jo Kay Ghosh, Health Effects Officer

Mike Krause, Program Supervisor

Sang-Mi Lee, Program Supervisor

Anthony Oliver, Air Quality Specialist

Payam Pakbin, Air Quality Specialist

Elaine Shen, Program Supervisor

Jill Whynot, Assistant Deputy Executive Officer

Xinqi Zhang, Air Quality Specialist

Interested Parties

Lori Ballance, Gatzke Dillion & Ballance LLC

Mike Bromowitz, Board Consultant to Joseph Lyou

Amber Coluso, Port of LA

Peter Herzog, Commercial Real Estate Development Association

Bill LaMarr, California Small Business Association

Julia Lester, Ramboll Environ

Rita Loof, Radtech

Rongsheng Luo, Southern California Association of Governments

Noel Muyco, Southern California Gas

David Rothbart, Sanitation Districts of Los Angeles County

Lee Wallace, Southern California Gas (retired)

Scott Weaver, Environmental Resources Management

Ying Zhou, Southern California Association of Governments

Appendix A: Comments submitted after the meeting

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DATE: March 19, 2016

TO: **AQMD Socio-Economic Team, Frank Wen, Jin Huang**

FROM: Stephen Levy

SUBJECT: Notes from the Meeting

1. I think we are in a better position that at this point in the socio-economic review last time.
2. Here are two issues from last time for those who are new. One is using the same target years in all tables and charts and if that is not possible, use the main target year (2031 as I understand) as well as the other. Two is using percentage changes much more than numerical changes for jobs and population. The region has roughly 7+ million jobs and 18 million residents and both will increase by at least 1-2+ million by 2031.

With 7 million jobs a change of 70,000 is 1% of the base (more of the increment) and a change of 7,000 jobs (.1%), 700 jobs is .01% and 70 jobs is .001%. Most if not all job and population changes are noise and even for the aggregate regional total are apt to be in the 1% or less range. There is a difference between saying a control measure or the AQMP will change jobs by 70 versus saying it will change by .001% of the regional total.

3. I understand the agreement between the District and SCAG with regard to the baseline definition. I want to follow up on the comments Jin and I made during the meeting.

I understand that the benefits and costs examined in the socio-economic assessment deal with the 2016 AQMP control measures. But I also understand from a different perspective that the benefits and costs of cleaning the air across all AQMPs are an important result.

The challenge is how to acknowledge both sets of benefits and costs. One minimum approach is simply to acknowledge the fact stated above and clarify the scope/limitation of this one particular socio-economic assessment.

Another approach, which should be easy, is to show the improvement in various measures of air quality or other relevant measures over the past 30-40 years.

Then there is Jin's suggestion that the cumulative benefits and costs are the aggregation of each plan's impacts. There may be nuances in doing this that need explanation but it is an interesting idea.

4. I appreciate that the job estimates and projections will be described using the EDD/BLS measures/definitions that SCAG used and are familiar to readers.
5. I understand that SCAG will produce an appendix that this time will include an assessment of the benefits and costs of SCAG policy measures in the RTP/SCS. I would like to review this before making comments.
6. I heard questions about the past accuracy of SCAG forecasts. I have seen the table that SCAG produced some years ago. Here are my concerns with just showing the table:

--the forecast may have been off because we (I) incorrectly forecast the share of national jobs locating in the region. That should be noted when true.

--But the forecast could be off for a number of other reasons including

- a) The end year was a recession year or a boom peak
- b) National population and jobs were different than we thought from changes in birth rates
- c) National population and jobs were different than we thought from changes in immigration levels

- d) As in the 1990s some unexpected event like massive base closures or the decline in defense spending may have occurred
- e) The beginning and end year of the forecast caused the variation—if years were varied by one or two the “variation” disappears.

I am talking to Frank about who should do the explanation. I am probably the right one for regional variations and staff for sub regional variations.

- 7. For the economic and demographic write-up of forecast results, I strongly suggest a focus on the regional results, perhaps comparing growth rates to previous AQMPs. The county results are what SCAG will adopt but they are much more influenced by political tradeoffs than the regional results and in one or two cases are misleading as to what is likely to happen, We can discuss specifics and solutions when the time is right.

I would split Priscilla’s first chart into two or more. Whenever you show counties, I would include the regional total.

I think the age structure changes are very important and probably can be better shown in a separate table concentrating on the region.

My suggestion given the EJ orientation is to focus also on the ethnic changes although I suspect you already planned to do that.

In my recent memos I have been working with showing the industry structure changes historically and can be extended to the forecasts. I can send some examples and, if you wish, suggest some informative charts for the write-up.

The manufacturing charts are interesting. I would have lay readers give feedback on whether they are clear. Again I would focus on the region with some county data maybe.

- 8. The SCAG regional forecast for jobs and population was chosen after reviewing a range of forecasts with a panel of experts. As I remember the selected forecast level was below the middle of the forecast range.

9. I will have to look at what it means to start with a REMI 2013 base year/ It may have no major impact but raises a red flag to check as there was strong growth between 2013 and 2016.
10. The REMI/SCAG adjustment process appears to have been done correctly.
11. I can check the explanation of the difference between the REMI and SCAG/EDD/BLS measure of jobs.
12. I do not fully understand the labor productivity adjustment process and whether its affect on results is significant but it may not be a problem.
13. It looks like the population adjustment was done correctly. SCAG staff and I may have a comment on the final explanation but the results look good.
14. Thanks, call or email with questions or comments.